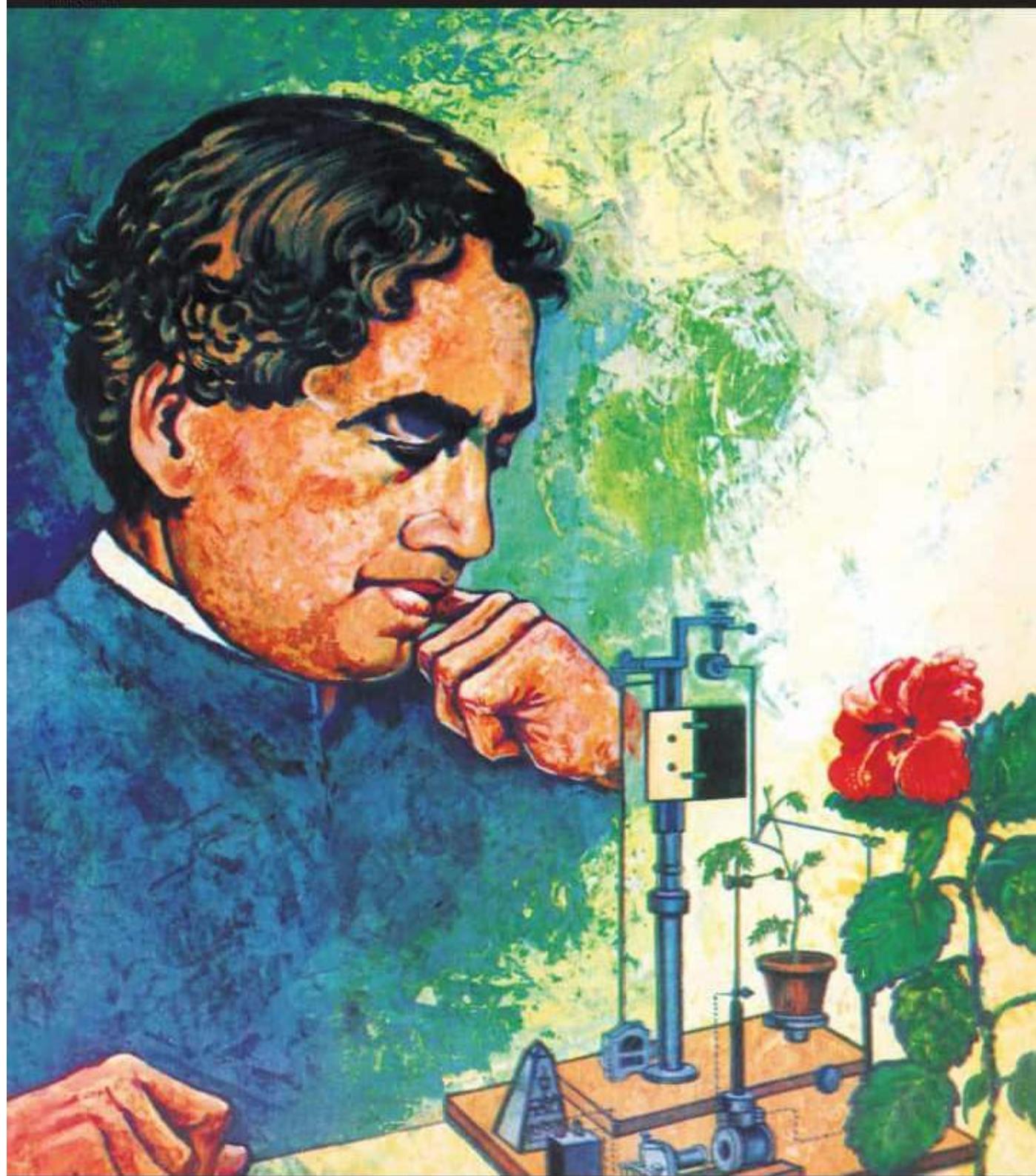




JAGADIS CHANDRA BOSE

THE SCIENTIST WHO BEFRIENDED PLANTS AND METALS

Vol 699





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JAGADIS CHANDRA BOSE



1862, FARIDPUR : A BOY OF FOUR LOOKED UP AT THE SKY ...

... AND TURNED TO HIS FATHER.



WHERE HAVE THEY GONE, BABA?



THEY HAVEN'T GONE ANYWHERE, SON. WE CANNOT SEE THEM BECAUSE THE SUN'S LIGHT IS BRIGHTER.



BABA, WHY ARE PLANTS ALL GREEN? BIRDS AND ANIMALS HAVE SO MANY COLOURS.

TO TELL YOU THE TRUTH, I DON'T KNOW.



WHEN YOU GROW OLDER TRY TO FIND OUT WHY.

THE BOY WHO ASKED QUESTIONS WAS JAGADIS CHANDRA BOSE WHO LATER BECAME THE FIRST INDIAN IN MODERN TIMES TO WIN INTERNATIONAL ACCLAIM AS A SCIENTIST.

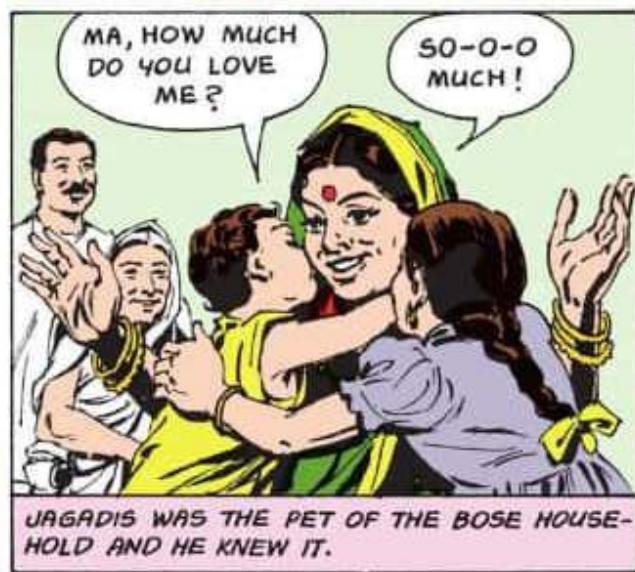
JAGADIS'S MOTHER, BAMESUNDARI, WAS A TRADITIONAL HINDU WIFE AND A LOVING BUT STRICT MOTHER.



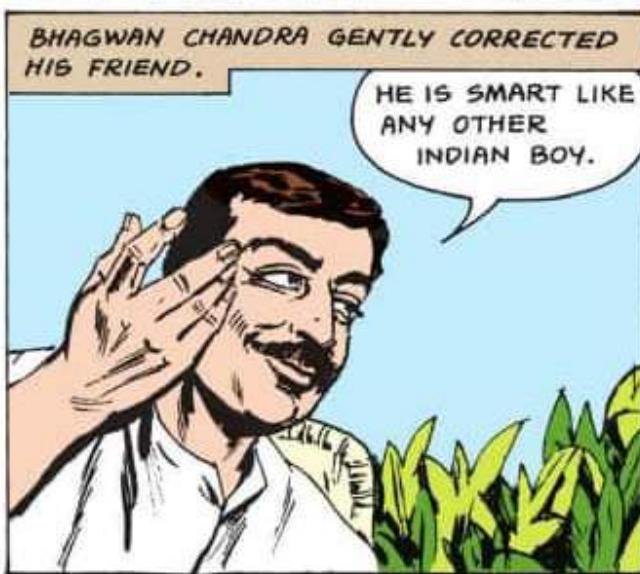
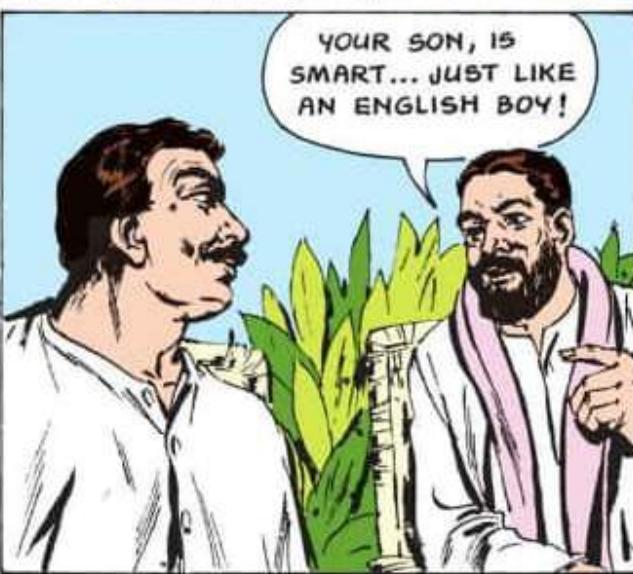
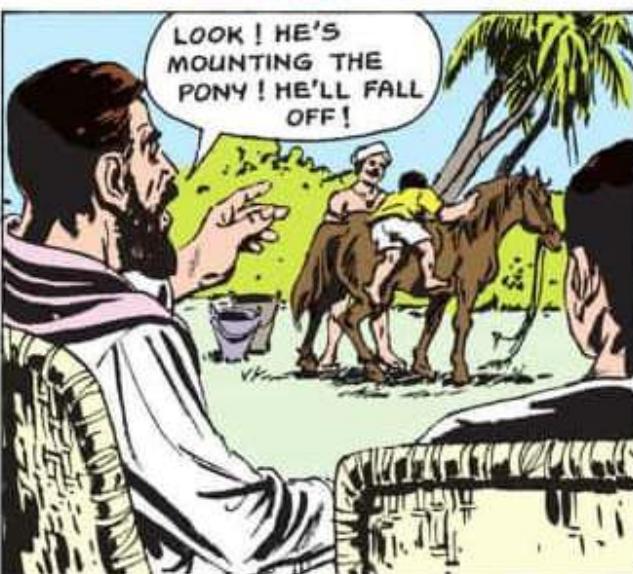
JAGADIS LIKED TO LISTEN TO THE STORY OF KARNA AGAIN AND AGAIN.

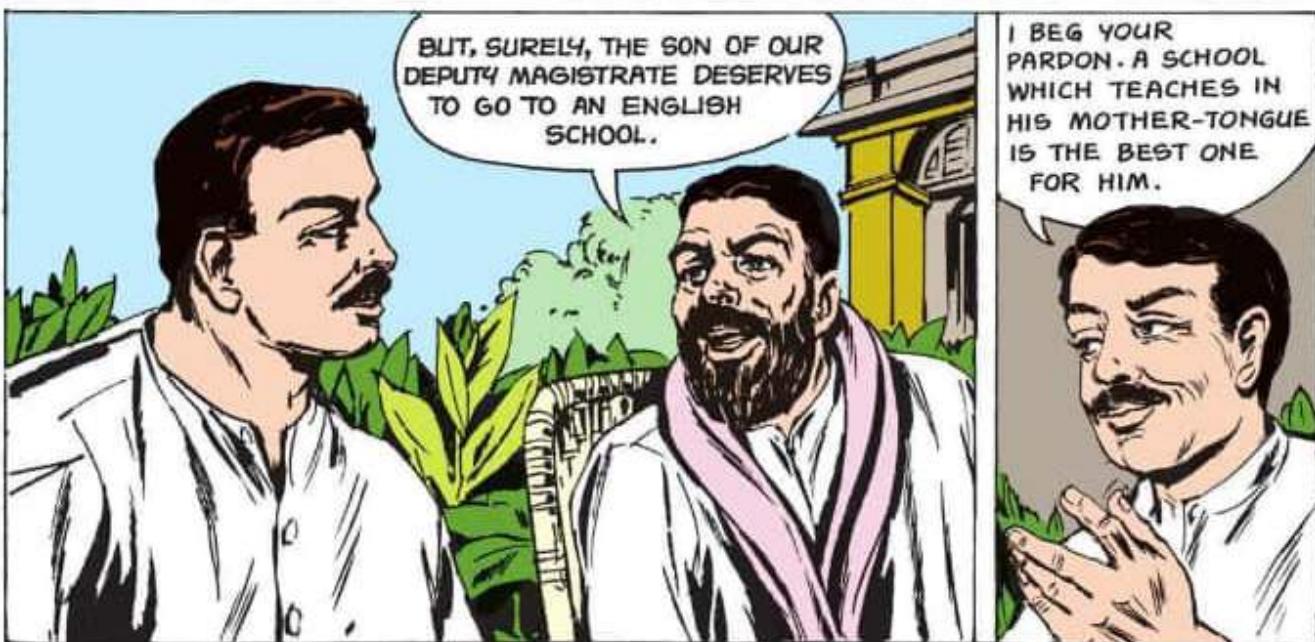
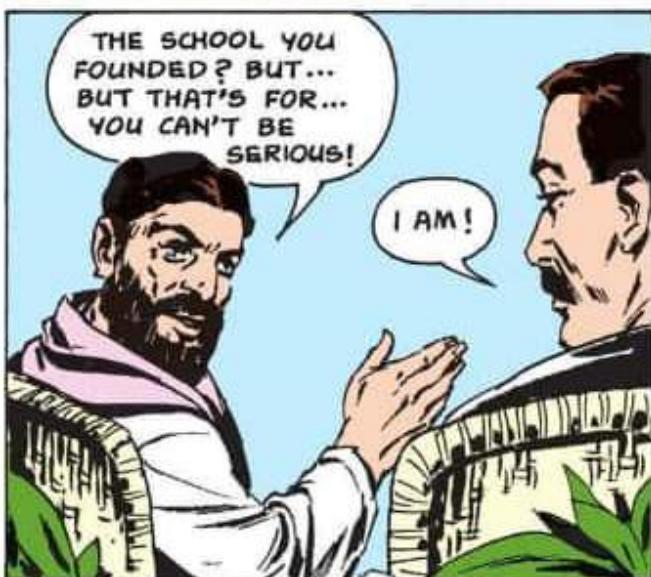
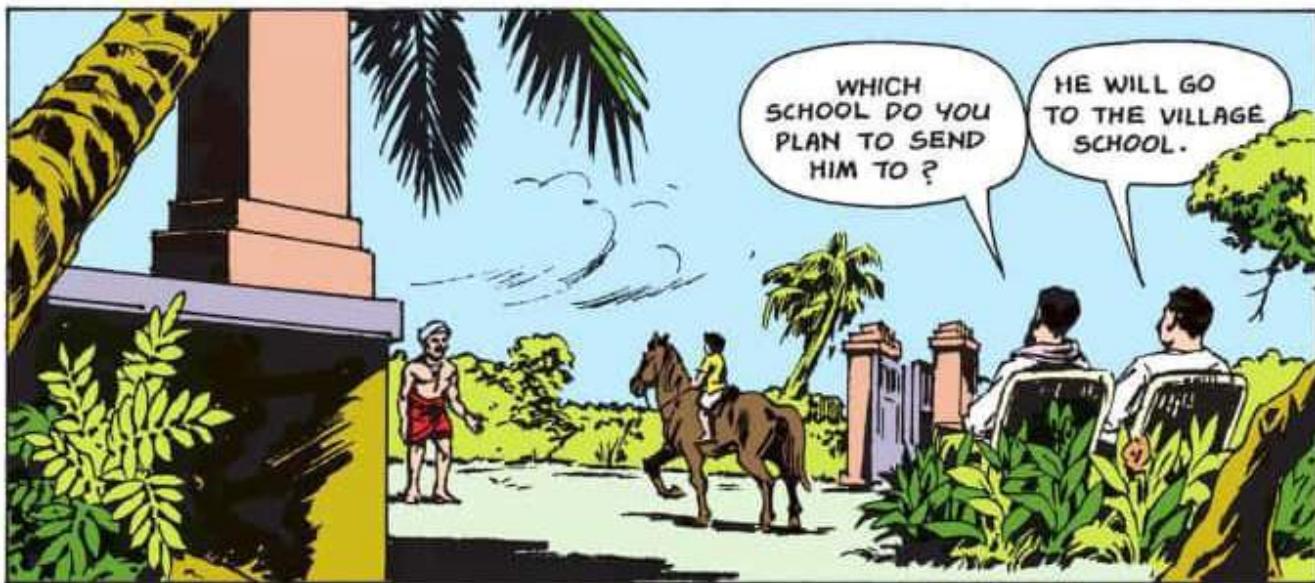


WHEN THE STORY-TELLING WAS OVER, BAMESUNDARI ASKED HIM THE USUAL QUESTION.

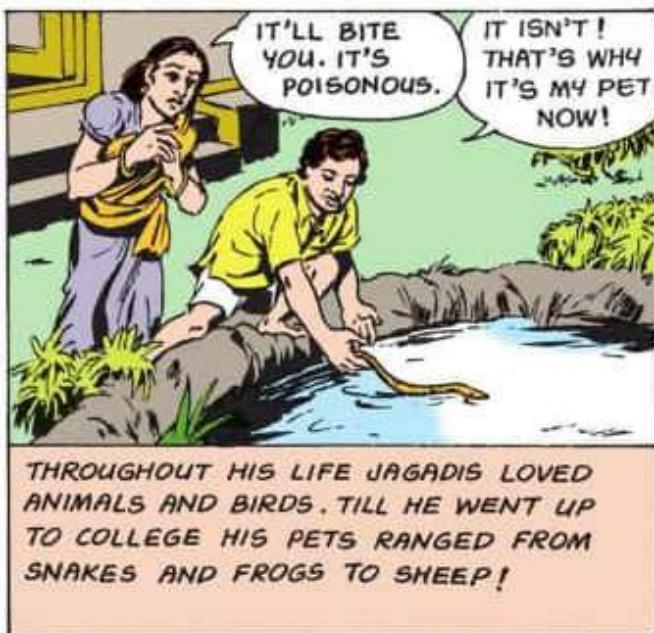


JAGADIS' FATHER, BHAGWAN CHANDRA BOSE, WAS THE DEPUTY MAGISTRATE OF FARIDPUR. HE WAS A GREAT LOVER OF SPORT.





WHILE OTHER CHILDREN WERE CONTENT WITH SCHOOL WORK, JAGADIS, EVER CURIOUS ABOUT NATURE, WAS ALWAYS RUNNING OFF TO GAZE AT THE FIELDS, THE WOODS, THE RIVER.



WHEN JAGADIS WAS TEN, HIS FATHER WAS TRANSFERRED TO BURDWAN AS AN ASSISTANT COMMISSIONER.

BAMASUNDARI, I HAVE DECIDED THAT JAGADIS SHOULD NOW GO TO AN ENGLISH SCHOOL AT CALCUTTA. HOSTEL LIFE WILL MAKE HIM SELF-RELIANT AND STRONG.



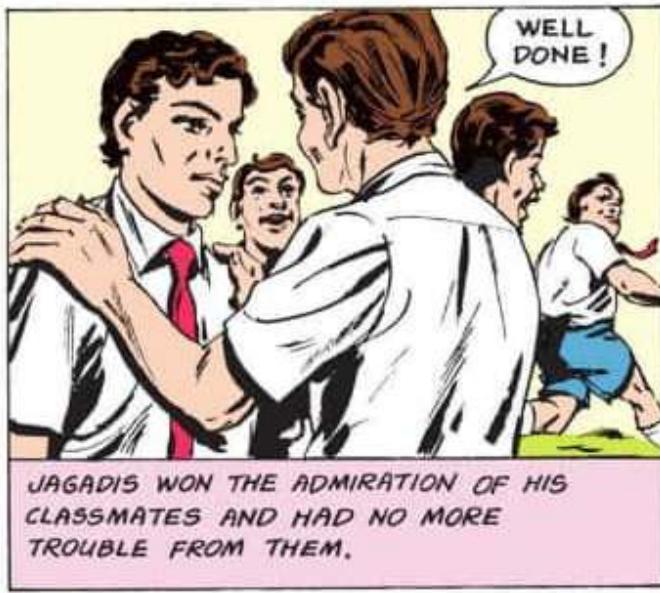
THE CHANGE FROM THE COSY WARMTH OF HIS TRADITIONAL INDIAN HOME TO A HOSTEL OF BLUNT, BOISTEROUS STUDENTS MADE JAGADIS MISERABLE AND HOMESICK.



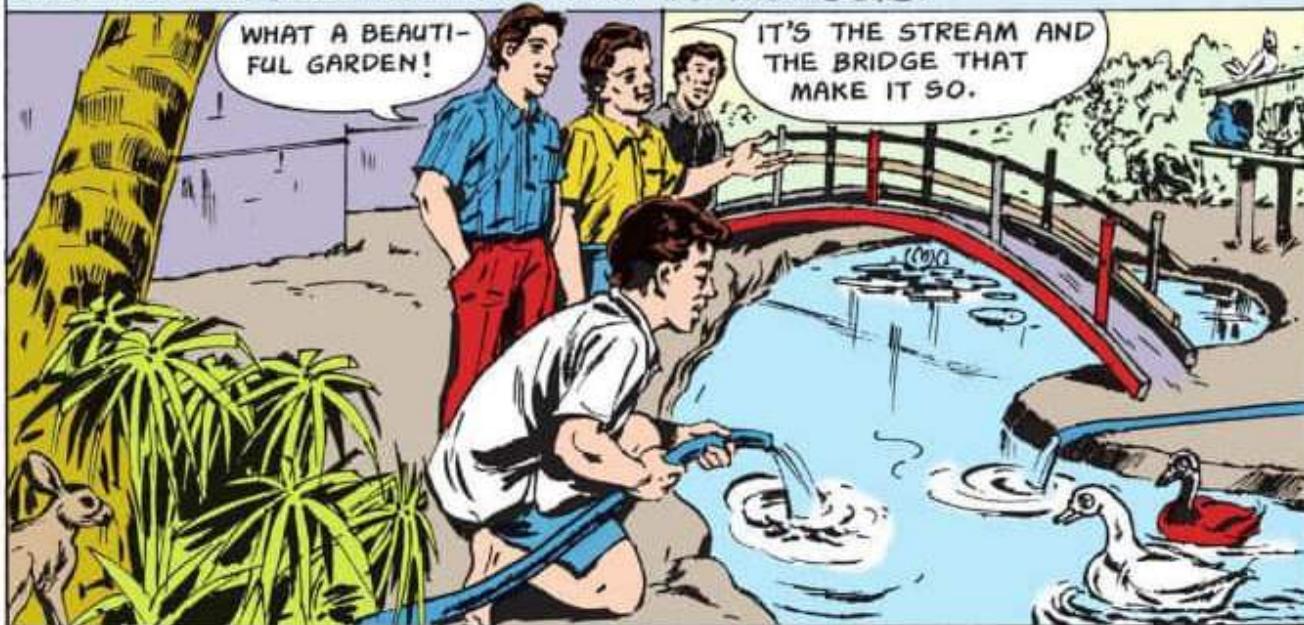
THE FIRST FEW DAYS AT SCHOOL WERE PARTICULARLY BAD FOR THE SENSITIVE BOY. HE DID NOT KNOW WESTERN MANNERS AND HE COULD BARELY SPEAK ENGLISH.



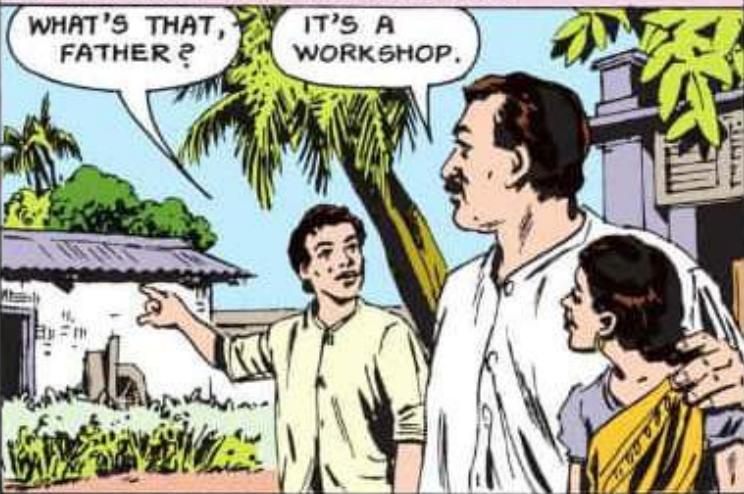




OVER THE NEXT FEW WEEKS HE MADE A GARDEN IN THE HOSTEL, COLLECTED A FEW PETS AND SOON BEGAN TO ENJOY SCHOOL AND HOSTEL LIFE.



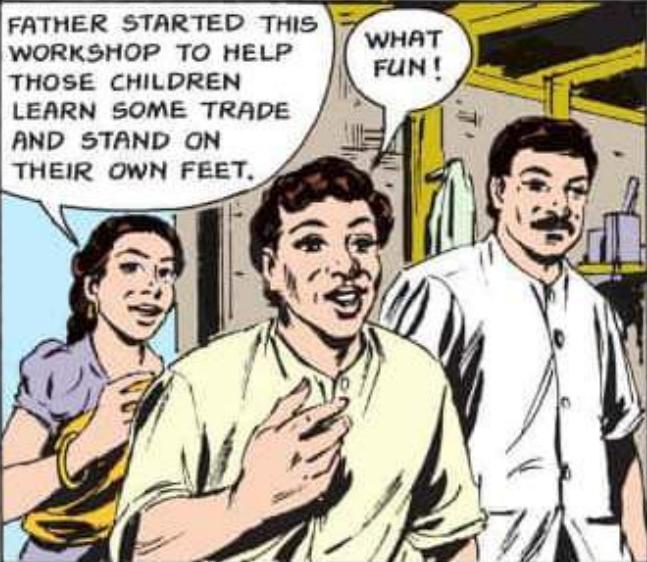
AT THE END OF TERM JAGADIS RETURNED HOME TO BURDWAN FOR HIS HOLIDAYS.



WHEN YOU WERE AWAY AT SCHOOL, A MALARIA EPIDEMIC BROKE OUT HERE. MANY CHILDREN LOST THEIR PARENTS.

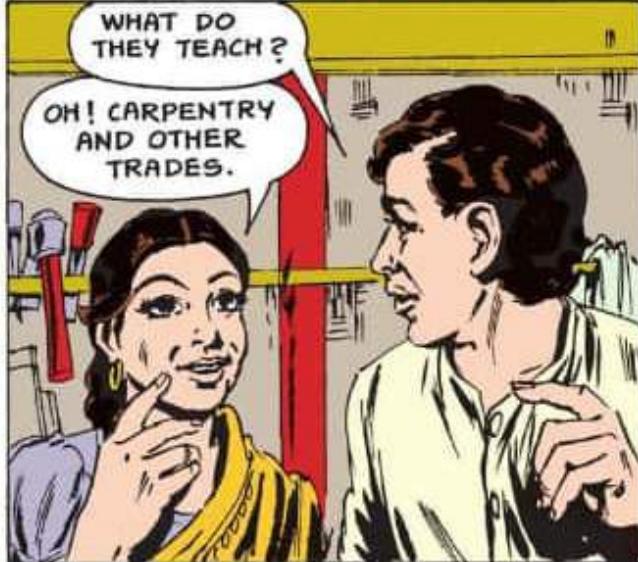


FATHER STARTED THIS WORKSHOP TO HELP THOSE CHILDREN LEARN SOME TRADE AND STAND ON THEIR OWN FEET.



WHAT DO THEY TEACH?

OH! CARPENTRY AND OTHER TRADES.

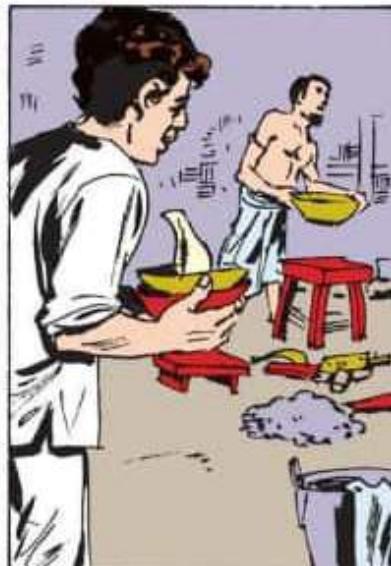


JAGADIS STARTED SPENDING MOST OF HIS TIME IN THE WORKSHOP.



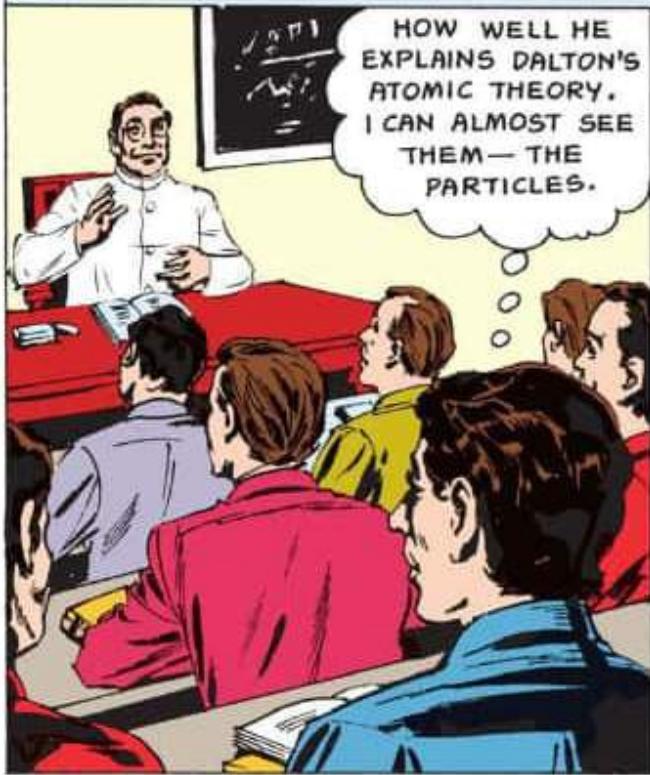
BUT WHAT FASCINATED HIM MOST WAS THE FOUNDRY.



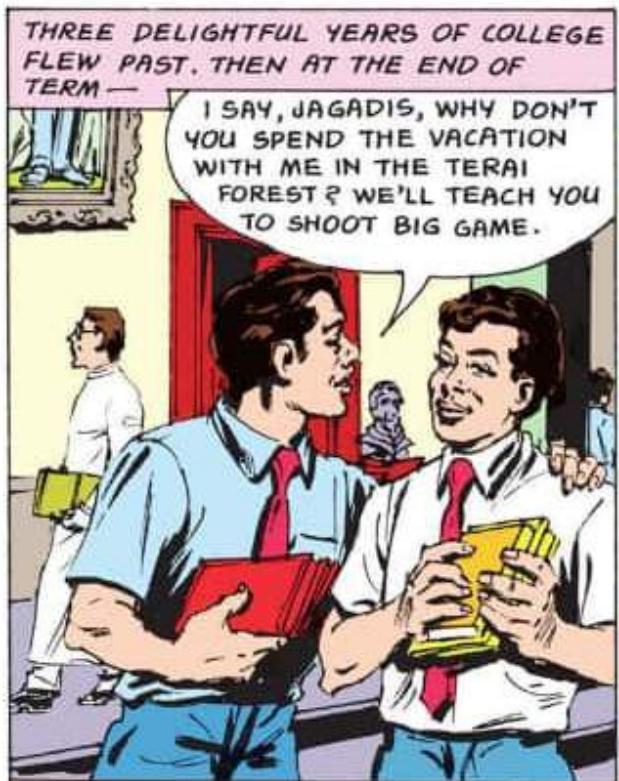


WHAT JAGADIS LEARNT AT THE WORKSHOP DURING HIS SCHOOL HOLIDAYS STOOD HIM IN GOOD STEAD LATER IN LIFE.

JAGADIS FINISHED SCHOOL AT SIXTEEN AND JOINED ST. XAVIER'S COLLEGE. THERE HE FELL UNDER THE SPELL OF FR. LAFONT, THE RECTOR OF THE COLLEGE AND THE BEST PROFESSOR OF PHYSICS IN INDIA IN THOSE DAYS.

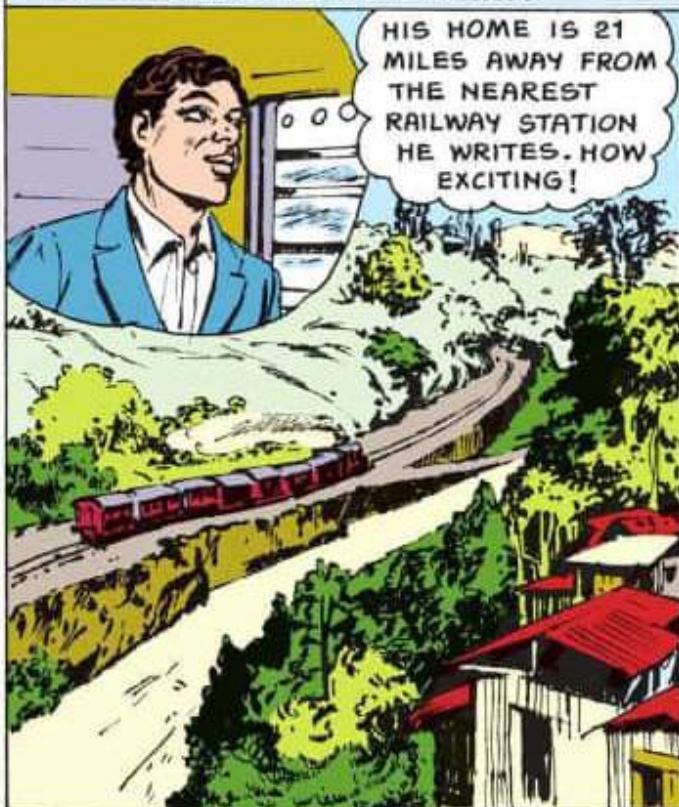


FR. LAFONT ON HIS PART SAW GREAT PROMISE IN HIS STUDENT AND ENCOURAGED HIM IN THE STUDY OF PHYSICS.



JAGADIS ACCEPTED THE INVITATION AND CAME BACK AN EXPERT IN BIG-GAME HUNTING AND WITH A MILLION SAND-FLY BITES!

WHEN THE NEXT VACATION CAME ROUND, ANOTHER FRIEND INVITED HIM, TO ASSAM THIS TIME, FOR THE SAME SPORT.



* ABOUT 34 KM.

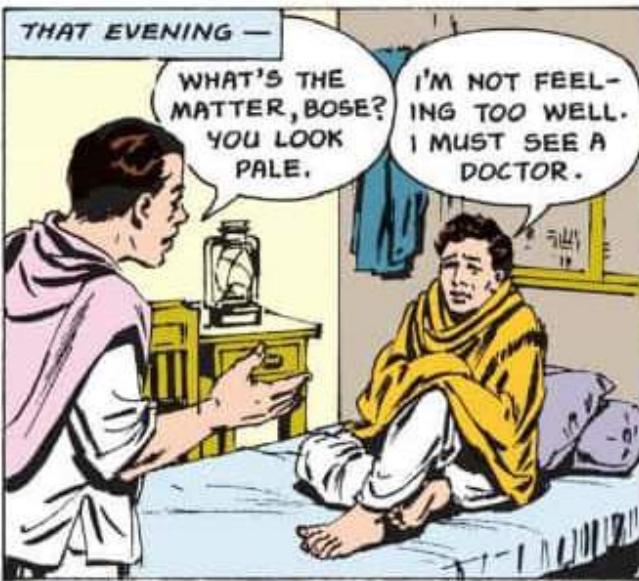
ALIGHTING AT THE ASSAM RAILWAY STATION HE HAD TO TRAVEL OVERNIGHT BY PALANQUIN TO REACH HIS FRIEND'S HOUSE.



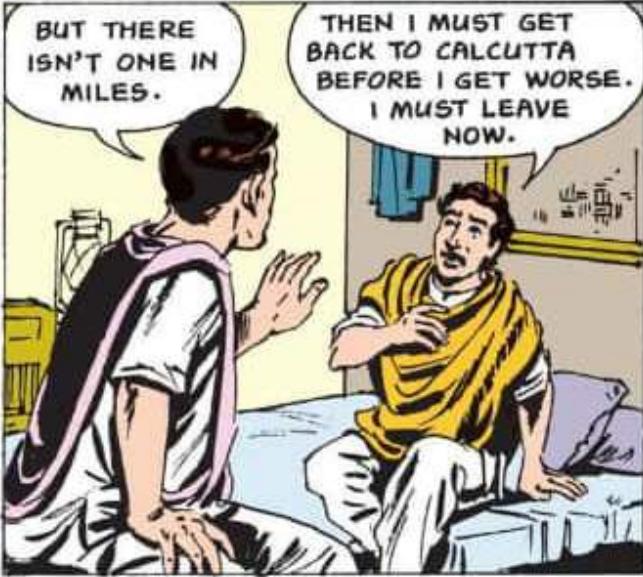
AS SOON AS HE REACHED, HE AND HIS FRIEND LEFT FOR THE FORESTS AND SPENT THE WHOLE DAY THERE.



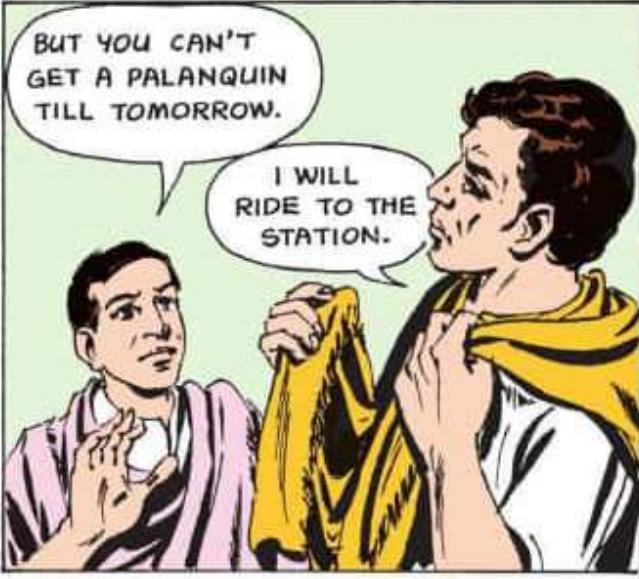
THAT EVENING —



I'M NOT FEELING TOO WELL. I MUST SEE A DOCTOR.

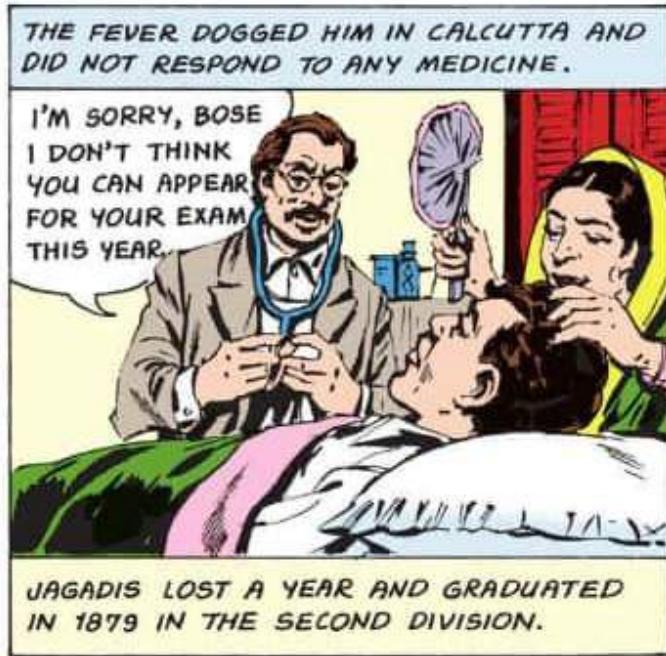
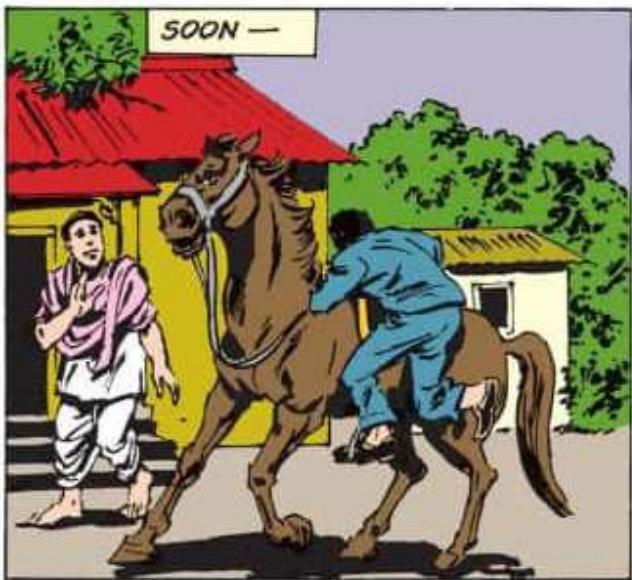


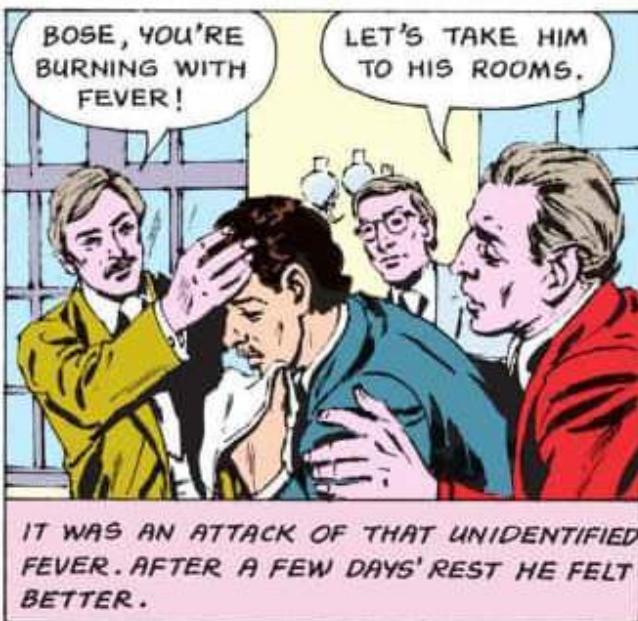
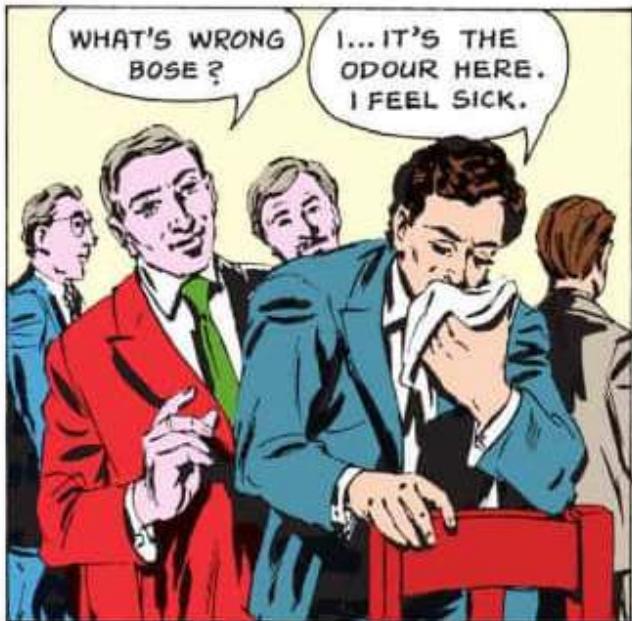
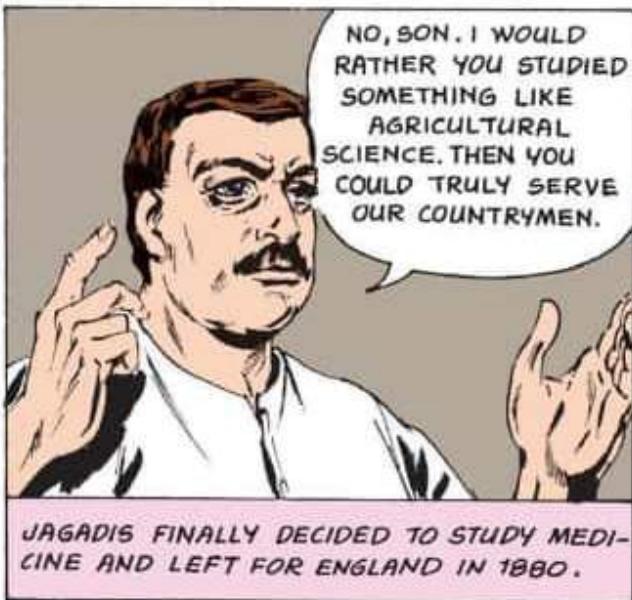
BUT YOU CAN'T GET A PALANQUIN TILL TOMORROW.



I'VE SENT AWAY THE HORSES WE USED. THE ONLY ONE HERE IS A WILD, VICIOUS CREATURE!







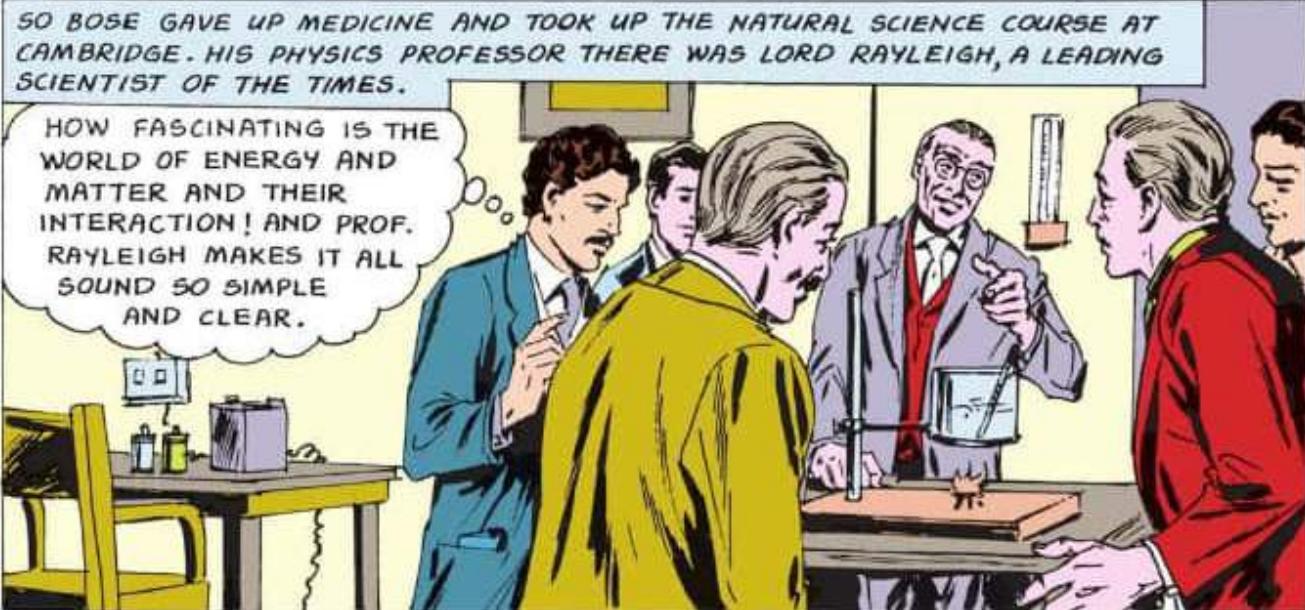
WHEN HE TRIED TO DO WORK AGAIN IN THE ANATOMY ROOM, HOWEVER, HIS FEVER REURRED. AT LAST —

MR. BOSE, I'M SORRY BUT I'M AFRAID YOU'LL HAVE TO GIVE UP THE STUDY OF MEDICINE. YOU ARE ALLERGIC TO THE ODOURS OF THE ANATOMY LAB.



SO BOSE GAVE UP MEDICINE AND TOOK UP THE NATURAL SCIENCE COURSE AT CAMBRIDGE. HIS PHYSICS PROFESSOR THERE WAS LORD RAYLEIGH, A LEADING SCIENTIST OF THE TIMES.

HOW FASCINATING IS THE WORLD OF ENERGY AND MATTER AND THEIR INTERACTION! AND PROF. RAYLEIGH MAKES IT ALL SOUND SO SIMPLE AND CLEAR.



HE HAS THE SAME APPROACH TO THE SUBJECT AS FR. LAFONT.



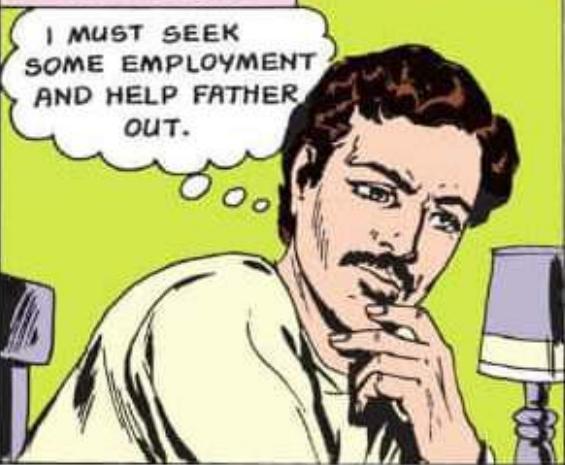
AT CAMBRIDGE HIS FEVER VANISHED AND NEVER AGAIN TROUBLED HIM.

HE TOOK HIS DEGREE (TRIPOS) IN THE NATURAL SCIENCES IN 1884 WITH PHYSICS, CHEMISTRY AND BOTANY...

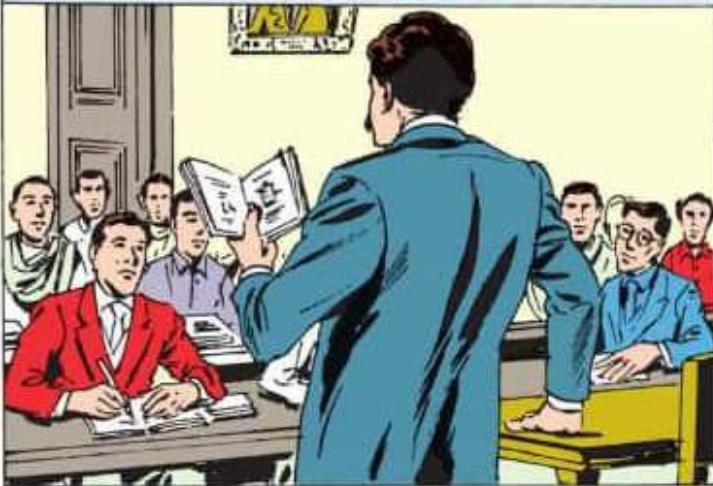


... AND SIMULTANEOUSLY TOOK A B.Sc. DEGREE FROM THE UNIVERSITY OF LONDON AS IT DID NOT REQUIRE ANY EXTRA WORK.

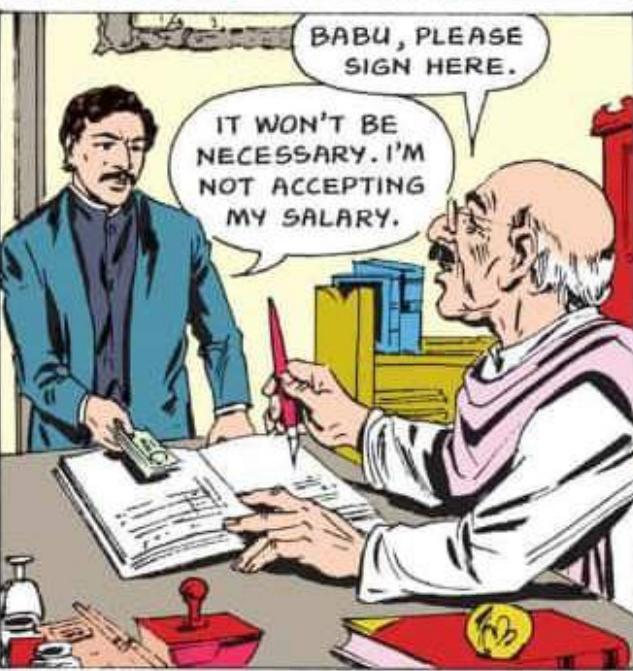
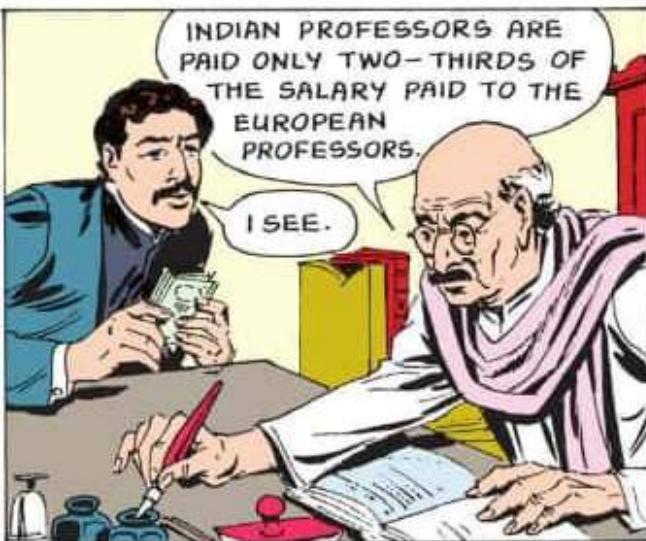
HE RETURNED TO INDIA AND FOUND THAT HIS FATHER HAD MADE SOME MISCALCULATIONS AND RUN UP HUGE DEBTS.



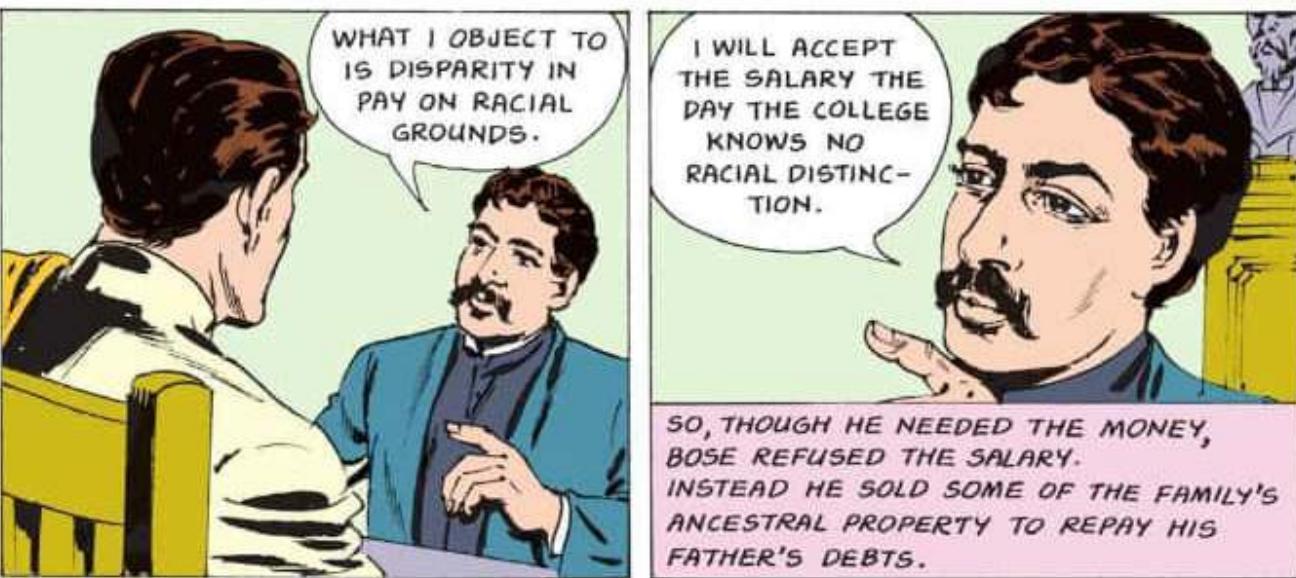
IN 1885, BOSE SECURED THE POST OF PROFESSOR OF PHYSICS AT PRESIDENCY COLLEGE IN CALCUTTA.



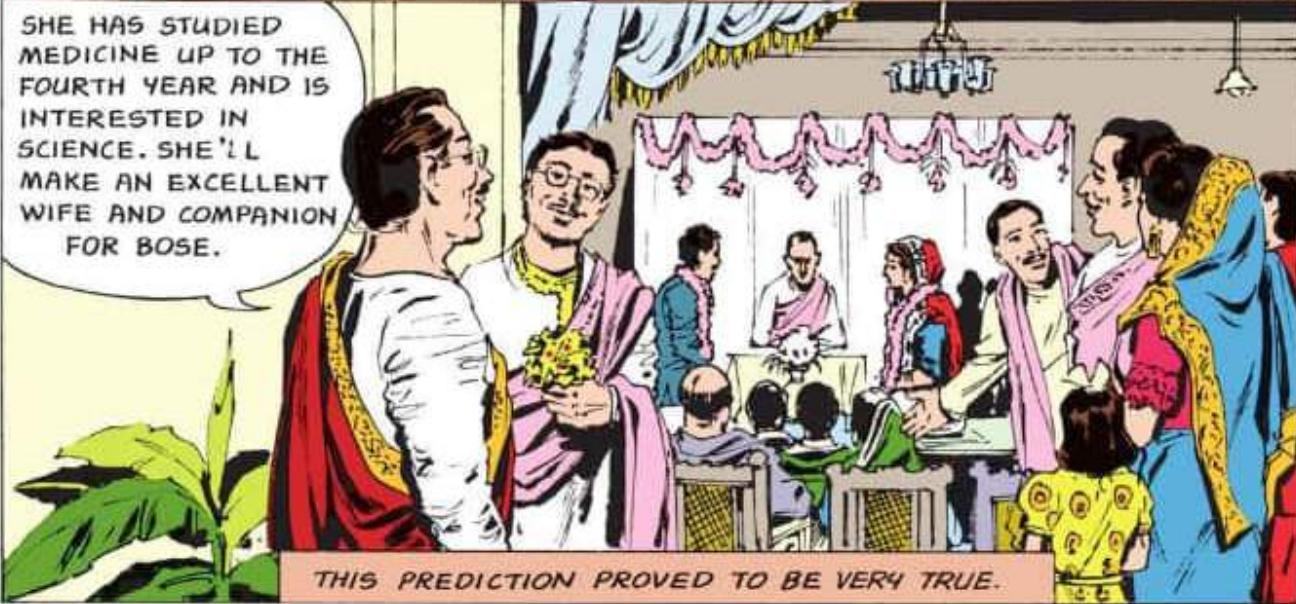
BUT SOMETHING HE DISCOVERED ONLY LATER MADE HIM VERY UNHAPPY.



PROF. BOSE'S THEN NOVEL WAY OF PROTESTING PERPLEXED HIS COLLEAGUES.



IN 1887 BOSE WAS MARRIED TO ABALA, THE DAUGHTER OF BHAGWAN CHANDRA'S FRIEND.



MEANWHILE BOSE WAS GETTING TO BE POPULAR WITH THE STUDENTS.

COME ON, LET'S HURRY. IT'S PROF. BOSE'S CLASS. WE WON'T BE ABLE TO SIT IN THE FIRST ROW IF WE ARE LATE.



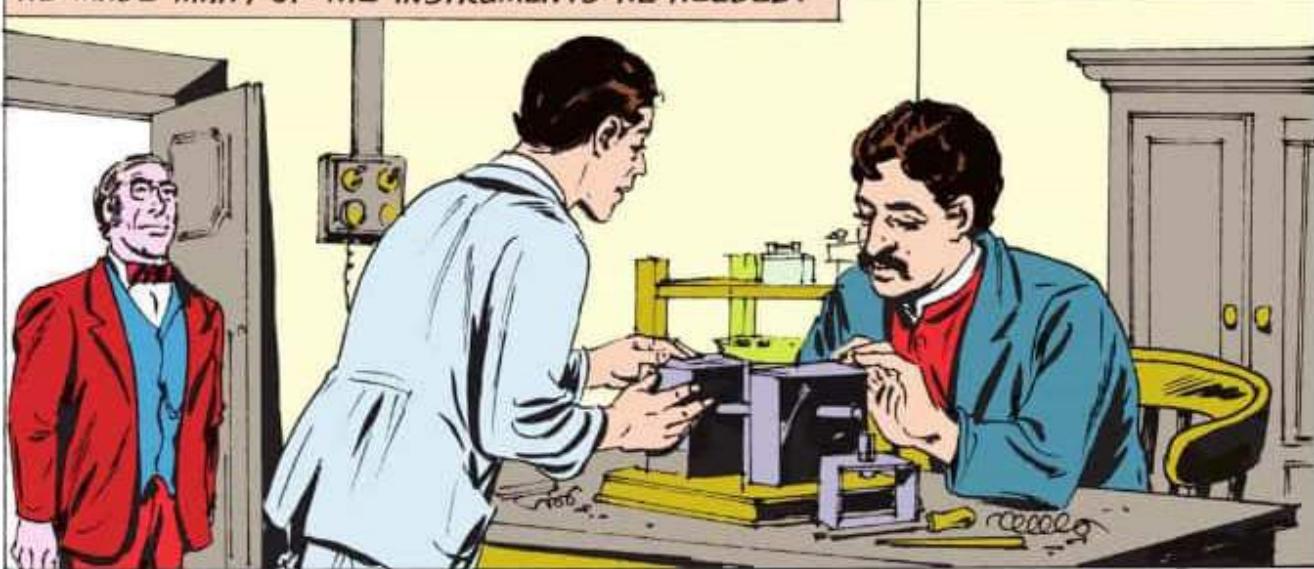
THOUGH IT TOOK THREE YEARS, BOSE'S PROTEST FINALLY MADE ITS IMPACT AND A COMMON PAY SCALE WAS INTRODUCED.

BOSE! YOU HAVE WON! CONGRATULATIONS.

THANK YOU.

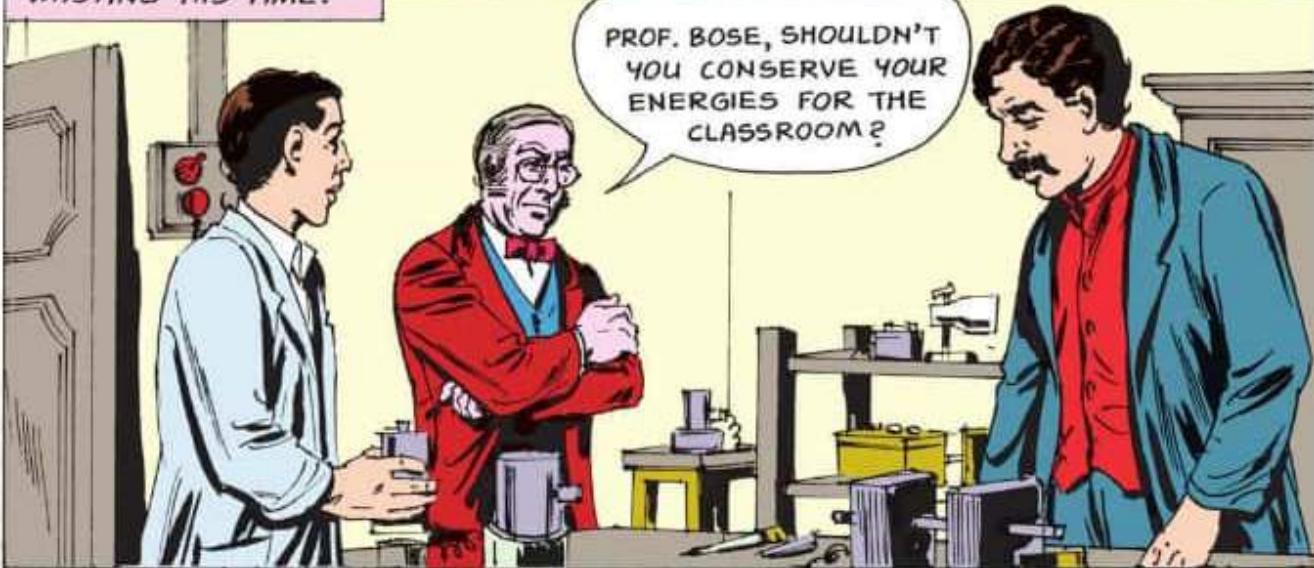
BOSE WAS GIVEN THE REVISED SCALE OF PAY WITH RETROSPECTIVE EFFECT.

IN THE NEXT FEW YEARS, BOSE SPENT MUCH OF HIS SPARE TIME IN THE COLLEGE LABORATORY. SPENDING HIS OWN MONEY AND USING HIS FINE ENGINEERING SKILL HE MADE MANY OF THE INSTRUMENTS HE NEEDED.



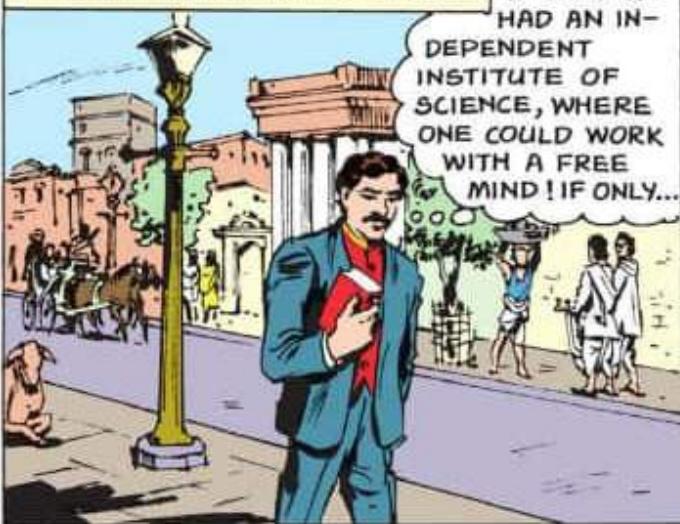
INSTEAD OF APPRECIATING HIS WORK THE COLLEGE AUTHORITIES FELT HE WAS WASTING HIS TIME.

PROF. BOSE, SHOULDN'T YOU CONSERVE YOUR ENERGIES FOR THE CLASSROOM?

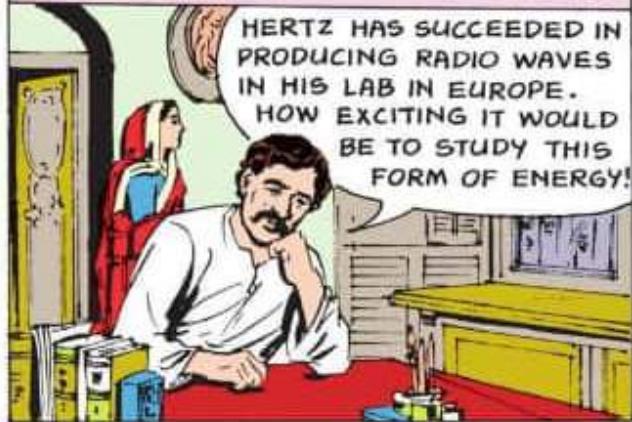


THIS ATTITUDE PAINED BOSE.

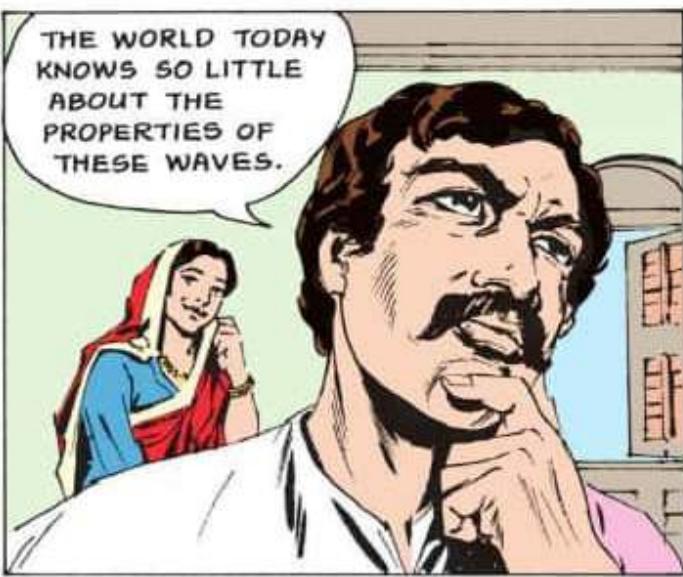
IF ONLY WE HAD AN INDEPENDENT INSTITUTE OF SCIENCE, WHERE ONE COULD WORK WITH A FREE MIND! IF ONLY...



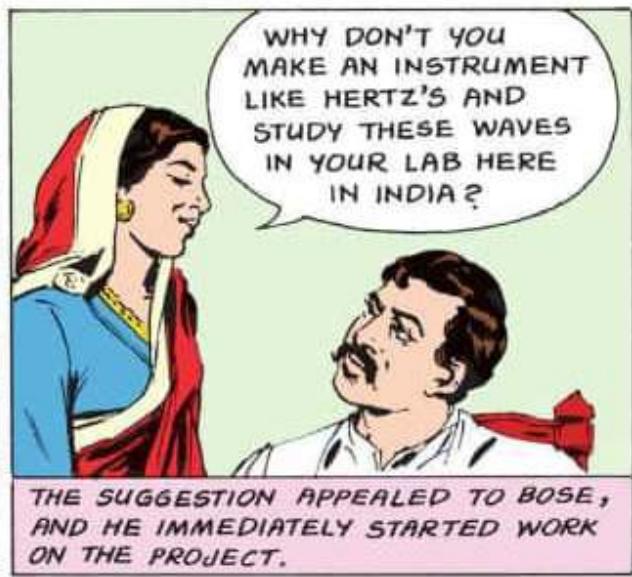
AT HOME HOWEVER IT WAS DIFFERENT. ABALA TOOK A KEEN INTEREST IN HIS RESEARCH WORK AND ACTIVELY ENCOURAGED HIM WHEN HE FELT LOW.



THE WORLD TODAY KNOWS SO LITTLE ABOUT THE PROPERTIES OF THESE WAVES.



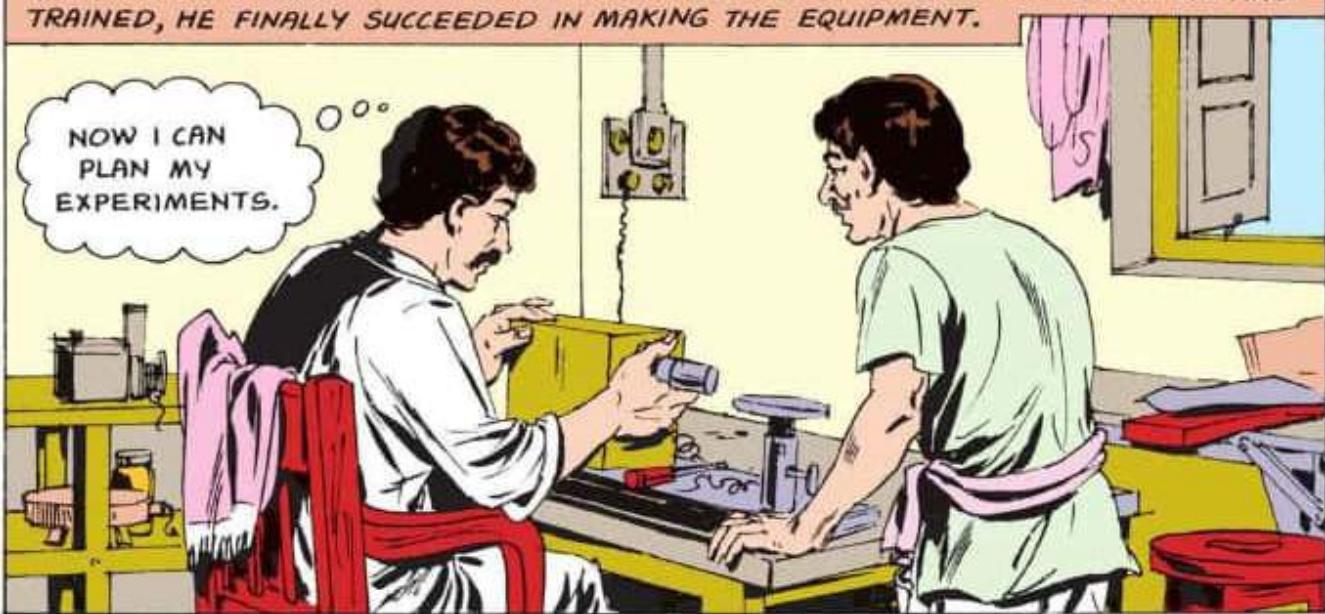
WHY DON'T YOU MAKE AN INSTRUMENT LIKE HERTZ'S AND STUDY THESE WAVES IN YOUR LAB HERE IN INDIA?



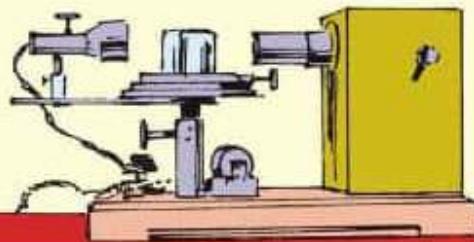
THE SUGGESTION APPEARED TO BOSE, AND HE IMMEDIATELY STARTED WORK ON THE PROJECT.

WITH HIS OWN ENGINEERING SKILL AND THE ASSISTANCE OF A TIN-SMITH HE HAD TRAINED, HE FINALLY SUCCEEDED IN MAKING THE EQUIPMENT.

NOW I CAN PLAN MY EXPERIMENTS.

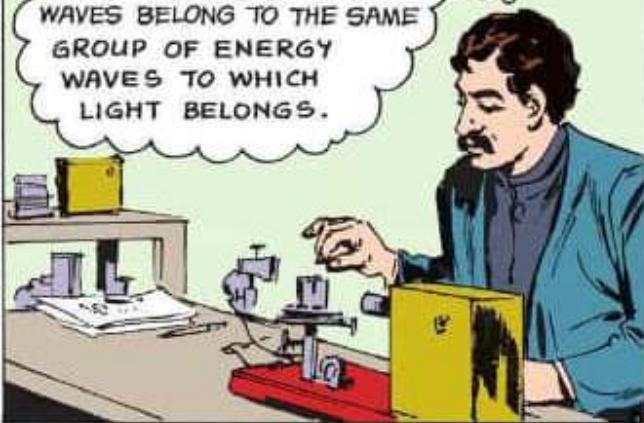


BOSE'S EQUIPMENT WAS A SCIENTIFIC MARVEL. THE COMPACT APPARATUS WAS MUCH SUPERIOR TO THE ONE MADE BY HERTZ. IT COULD PRODUCE RADIO WAVES OF VERY SHORT WAVELENGTHS WHICH NO OTHER APPARATUS COULD HITHERTO DO.



QUANTITATIVE EXPERIMENTS ON THE PROPERTIES OF THESE WAVES WERE NOW POSSIBLE FOR THE FIRST TIME.

THESE ELECTROMAGNETIC WAVES BELONG TO THE SAME GROUP OF ENERGY WAVES TO WHICH LIGHT BELONGS.



SO, LIKE LIGHT WAVES, IT MUST BE POSSIBLE TO POLARIZE RADIO WAVES TOO!



AS THESE WAVES HAVE VERY LOW ENERGY THEY SHOULD TRAVEL LONG DISTANCES WITHOUT BEING DESTROYED. I SHOULD TEST THAT.

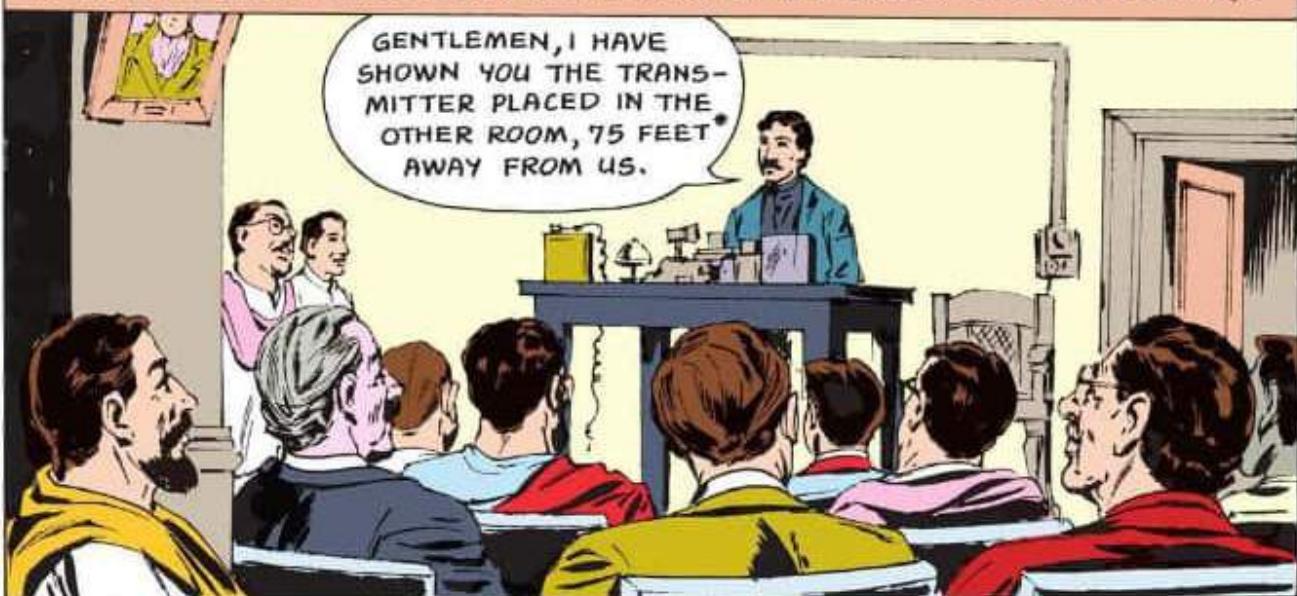


AND THUS BOSE DISCOVERED THE CRYSTAL NEMALITE WHICH COULD POLARIZE RADIO WAVES.

HIS EXPERIMENTS ON THIS TOO GAVE HIM POSITIVE RESULTS

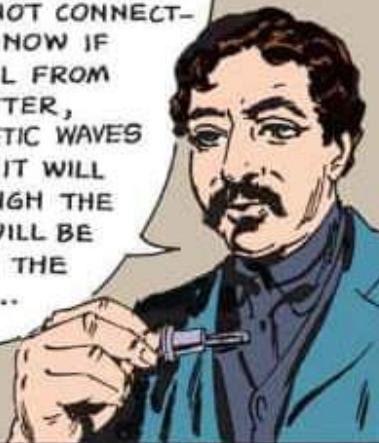
IN 1895 HE GAVE A PUBLIC DEMONSTRATION OF HIS DISCOVERIES IN CALCUTTA.

GENTLEMEN, I HAVE SHOWN YOU THE TRANSMITTER PLACED IN THE OTHER ROOM, 75 FEET AWAY FROM US.



* ABOUT 23 METRES

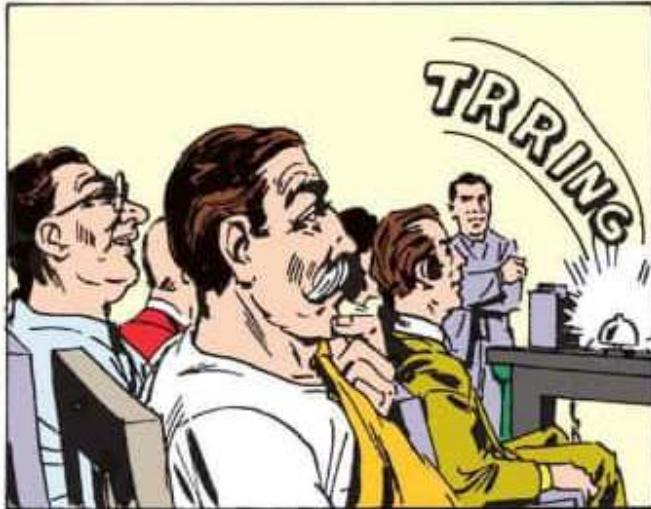
THIS IS THE COHERER.* YOU CAN SEE THAT THE COHERER AND THE TRANSMITTER ARE NOT CONNECTED BY WIRES. NOW IF I GIVE A SIGNAL FROM THE TRANSMITTER, ELECTROMAGNETIC WAVES PRODUCED BY IT WILL TRAVEL THROUGH THE WALLS AND WILL BE PICKED UP BY THE COHERER...



... AND THIS BELL WILL RING HERE.

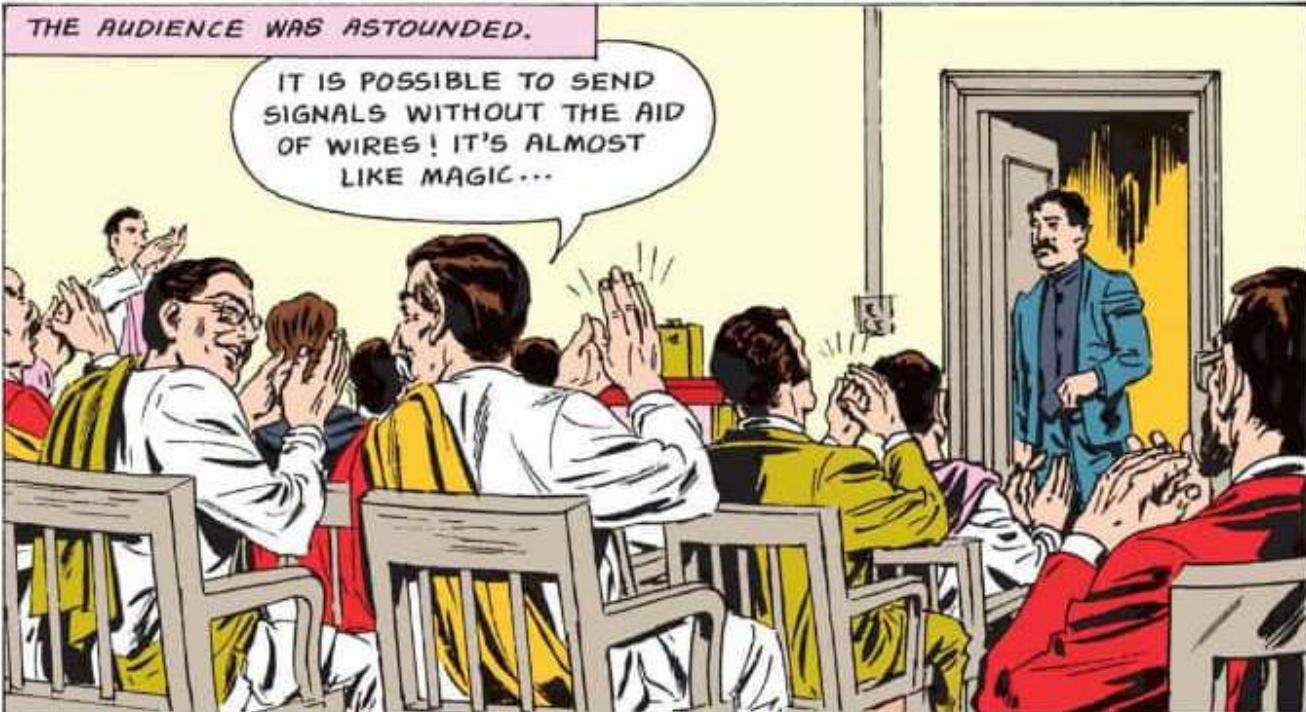


AS SOON AS BOSE WENT TO THE OTHER ROOM AND GAVE THE SIGNAL —



THE AUDIENCE WAS ASTOUNDED.

IT IS POSSIBLE TO SEND SIGNALS WITHOUT THE AID OF WIRES! IT'S ALMOST LIKE MAGIC...



* RECEIVER.

BOSE WORKED LONG HOURS IN THE LABORATORY AND YET FOUND TIME TO HELP HIS WIFE IN THE KITCHEN.

THERE, ABALA ! ALL YOUR JARS NEATLY LABELLED AND ARRANGED !



YOU JUST HAVE TO LOOK AT THE LABEL AND YOU GET WHAT YOU WANT.



BOSE STARTED WORK ON A PROJECT TO LINK HIS COLLEGE, A KILOMETRE AWAY, WITH HIS HOME BY RADIO. BUT A LETTER FROM THE ROYAL SOCIETY MADE HIM LEAVE IT HALFWAY.

ABALA, THE ROYAL SOCIETY IS PUBLISHING MY PAPERS.

THAT'S GREAT NEWS ! BUT I'M NOT SURPRISED.



I WISH I COULD MAKE A TRIP TO EUROPE AND OBSERVE THE WORK GOING ON THERE IN MY FIELD.

PERHAPS YOU COULD APPLY FOR SOME LEAVE AND PLAN A TRIP.



A FEW DAYS LATER, THE BRITISH ASSOCIATION OF SCIENTISTS INVITED BOSE TO SPEAK AT THEIR LIVERPOOL SESSION.

ABALA, I HAVE BEEN SANCTIONED SPECIAL LEAVE TO ATTEND THE SESSION. WE GO NEXT WEEK.

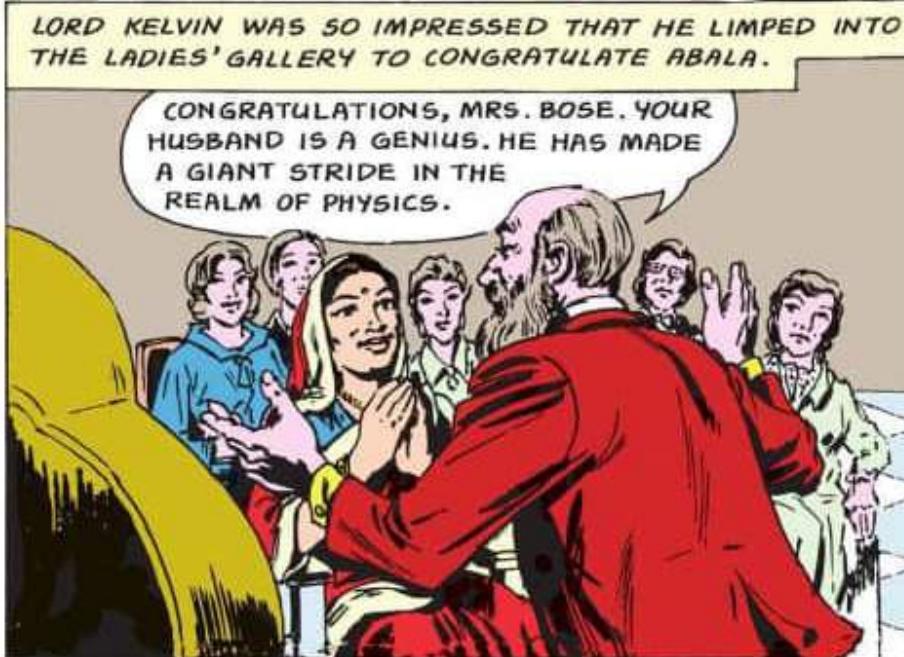


HIS TALK AT LIVERPOOL EARNED HIM THE ADMIRATION AND ESTEEM OF THE EMINENT SCIENTISTS FROM ALL OVER EUROPE WHO HAD ASSEMBLED THERE.



LORD KELVIN WAS SO IMPRESSED THAT HE LIMPED INTO THE LADIES' GALLERY TO CONGRATULATE ABALA.

CONGRATULATIONS, MRS. BOSE. YOUR HUSBAND IS A GENIUS. HE HAS MADE A GIANT STRIDE IN THE REALM OF PHYSICS.

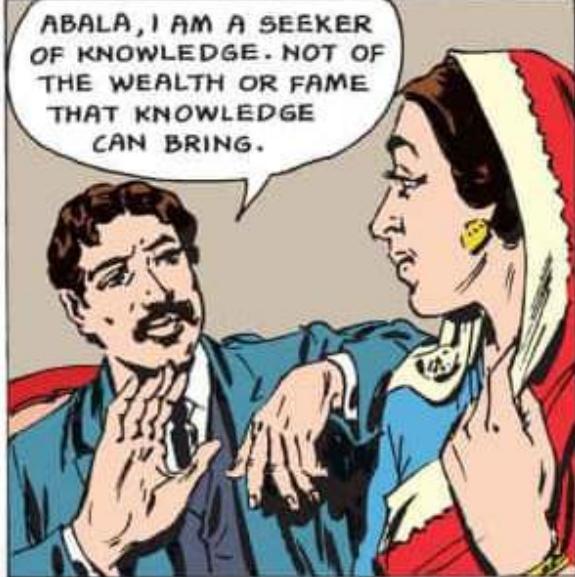
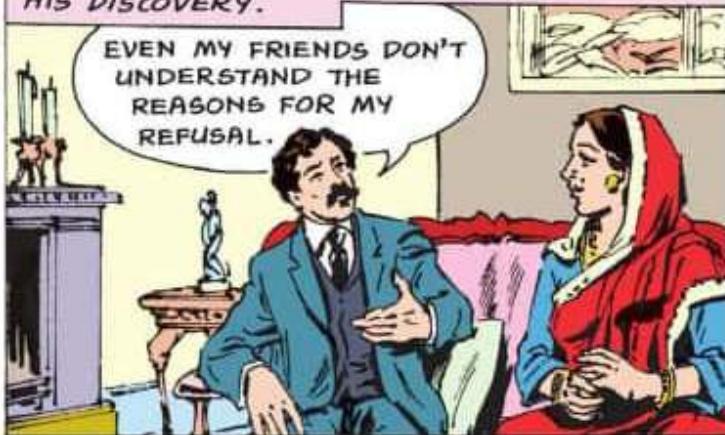


BOSE WAS MUCH SOUGHT AFTER AND HEARD RESPECTFULLY BY THE SCIENTISTS OF EUROPE. NOT EVEN THE BRITISH PRESS, ALWAYS CYNICAL OF INDIANS, COULD WITHHOLD ITS ADMIRATION. THE GOVERNMENT AS A SPECIAL GESTURE EXTENDED HIS LEAVE TO ALLOW HIM TO STAY ON IN ENGLAND.

MANY FIRMS IN EUROPE OFFERED BOSE FABULOUS PRICES FOR THE EXCLUSIVE RIGHTS ON HIS APPARATUS. BUT BOSE REFUSED EVEN TO OBTAIN A PATENT FOR HIS DISCOVERY.

EVEN MY FRIENDS DON'T UNDERSTAND THE REASONS FOR MY REFUSAL.

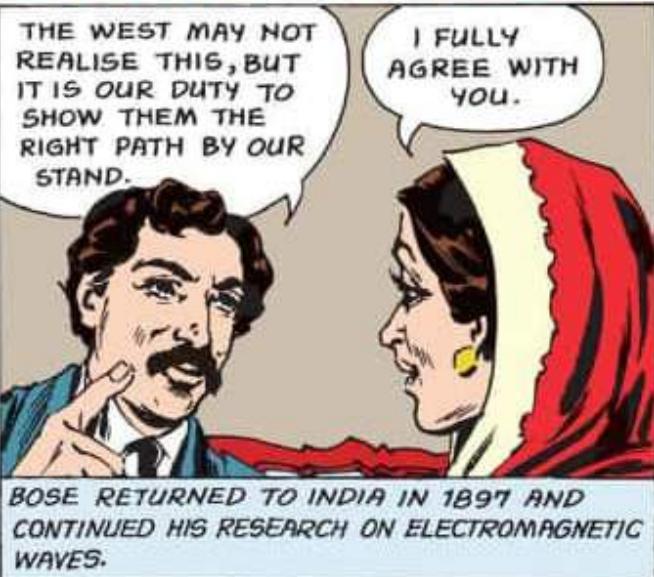
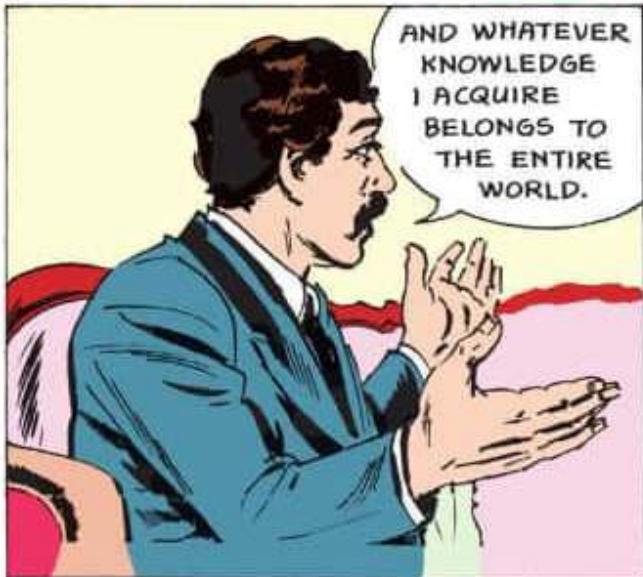
ABALA, I AM A SEEKER OF KNOWLEDGE. NOT OF THE WEALTH OR FAME THAT KNOWLEDGE CAN BRING.



AND WHATEVER KNOWLEDGE I ACQUIRE BELONGS TO THE ENTIRE WORLD.

THE WEST MAY NOT REALISE THIS, BUT IT IS OUR DUTY TO SHOW THEM THE RIGHT PATH BY OUR STAND.

I FULLY AGREE WITH YOU.

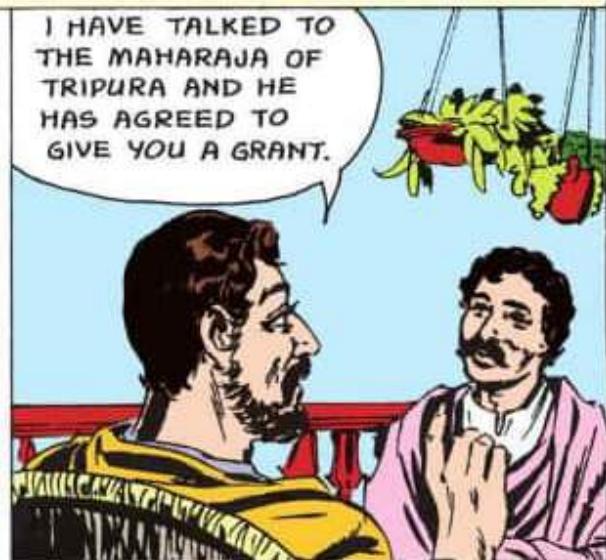
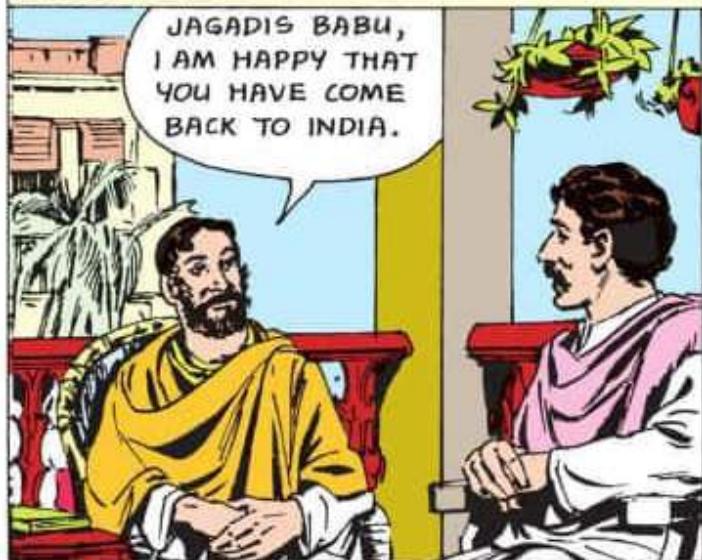


BOSE RETURNED TO INDIA IN 1897 AND CONTINUED HIS RESEARCH ON ELECTROMAGNETIC WAVES.

MANY PROMINENT INDIANS SAW A KINDRED SPIRIT IN HIM AND CAME TO HIS AID. TAGORE WAS ONE OF THEM.

JAGADIS BABU, I AM HAPPY THAT YOU HAVE COME BACK TO INDIA.

I HAVE TALKED TO THE MAHARAJA OF TRIPURA AND HE HAS AGREED TO GIVE YOU A GRANT.



BOSE SPENT ALL HIS TIME ON HIS RESEARCH ON ELECTROMAGNETIC WAVES. ONE DAY—

OH, THE SAME PROBLEM AGAIN. THE RECEIVER HAS LOST ITS SENSITIVITY. NOW I WILL HAVE TO WAIT TILL MORNING TO CONTINUE THIS EXPERIMENT.

THE NEXT DAY—

GOOD, NOW THE RESPONSE IS FINE. ON PROLONGED WORKING ITS SENSITIVITY GOES DOWN AS IF IT WERE TIRED. ON GETTING ENOUGH REST IT REGAINS ITS EFFICIENCY.

IS IT POSSIBLE THAT LIKE LIVING BEINGS METALS ALSO HAVE FATIGUE? SOUNDS IMPOSSIBLE BUT THAT IS WHAT HAPPENS HERE. BESIDES, INDIAN PHILOSOPHY DOESN'T RULE OUT SUCH A POSSIBILITY.

BOSE WAS THUS DRAWN INTO AN ALTOGETHER NEW FIELD OF INVESTIGATION. AND HE CAME UP WITH SOME STARTLING CONCLUSIONS.

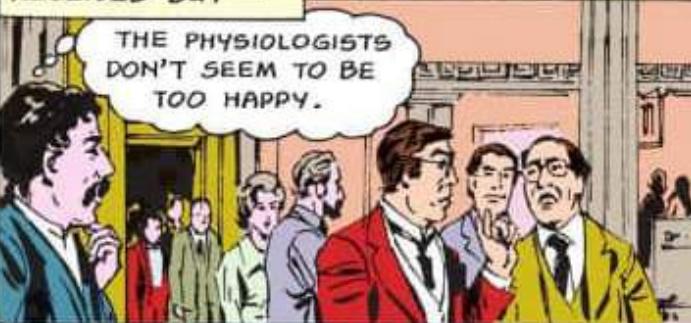
HOW STRANGE. HOW COULD WE SEPARATE THE LIVING AND NON-LIVING MERELY ON PHYSICAL RESPONSE...

IN 1900 THE GOVERNMENT SENT BOSE TO ATTEND THE INTERNATIONAL CONFERENCE OF PHYSICISTS AT PARIS. THERE HE PRESENTED HIS NEW FINDINGS ON THE RESPONSE IN THE LIVING AND NON-LIVING.

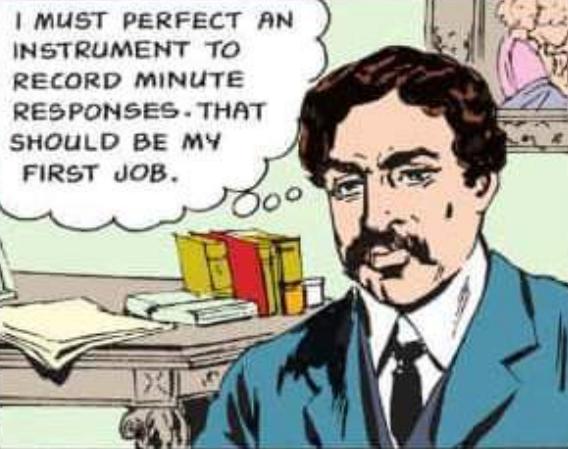
...THE LINES OF DEMARCACTION BETWEEN THE LIVING AND THE NON-LIVING COULD BE QUITE ARBITRARY.

REMARKABLE! ONLY AN INDIAN MIND COULD HAVE COME UP WITH IT. THIS DISCOVERY IS GOING TO REVOLUTIONISE SCIENTIFIC THINKING ITSELF.

FROM PARIS BOSE WENT TO ENGLAND WHERE HE READ A SIMILAR PAPER BEFORE THE BRITISH ASSOCIATION. HERE TOO IT WAS WELL RECEIVED BUT—

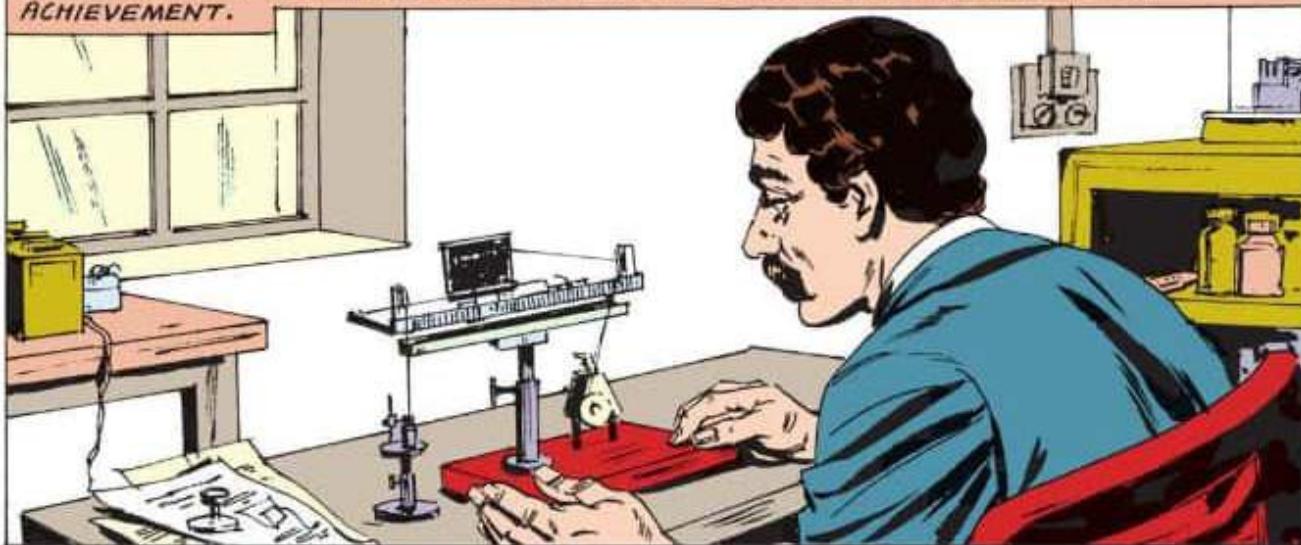


AT THE INVITATION OF LORD RALEIGH HE STAYED BACK IN LONDON TO DEVISE NEW TECHNIQUES.



THE PHYSIOLOGISTS WERE NOT. THEY COULD NOT ACCEPT BOSE'S METHOD OF EXPERIMENTATION AS SUCH METHODS WERE NOT RECOGNISED BY THEM.

WHAT HE EVENTUALLY DESIGNED FOR THIS PURPOSE WAS THE CRESCOGRAPH WHICH COULD AMPLIFY ANY TINY SIGNAL 10 MILLION TIMES. IT WAS A MAGNIFICENT ACHIEVEMENT.



BOSE RECORDED THE RESPONSES OF ANIMALS AND METALS TO DIFFERENT STIMULI.

ALL THE RECORDINGS CONCLUSIVELY PROVE THE SIMILARITY IN THE RESPONSES. ONLY THE MAGNITUDE DIFFERS. I WONDER HOW PLANTS WILL RESPOND.



HE RUSHED TO THE GARDEN AND COLLECTED SOME LEAVES.



ON TESTING THEM HE WAS ASTOUNDED.



PLANTS RESPOND ELECTRICALLY TO ALL KINDS OF IMPULSES, JUST AS ANIMALS RESPOND TO ALL TYPES OF IRRITATIONS.

ACCEPTANCE TO HIS REVOLUTIONARY IDEAS HOWEVER WAS SLOW TO COME.



ORDINARY PLANTS RESPONDING TO ELECTRIC STIMULI LIKE ANIMAL TISSUES. IMPOSSIBLE!

BUT BOSE DIDN'T GIVE UP. HIS PAINSTAKING WORK AND METICULOUSLY PLANNED EXPERIMENTS SLOWLY WON HIM RECOGNITION.

IN 1902 HE CONDUCTED A NUMBER OF EXPERIMENTS BEFORE THE LINNEAN SOCIETY GATHERING CONSISTING OF MOST OF HIS CRITICS. WHEN BOSE FINISHED HIS LECTURE —



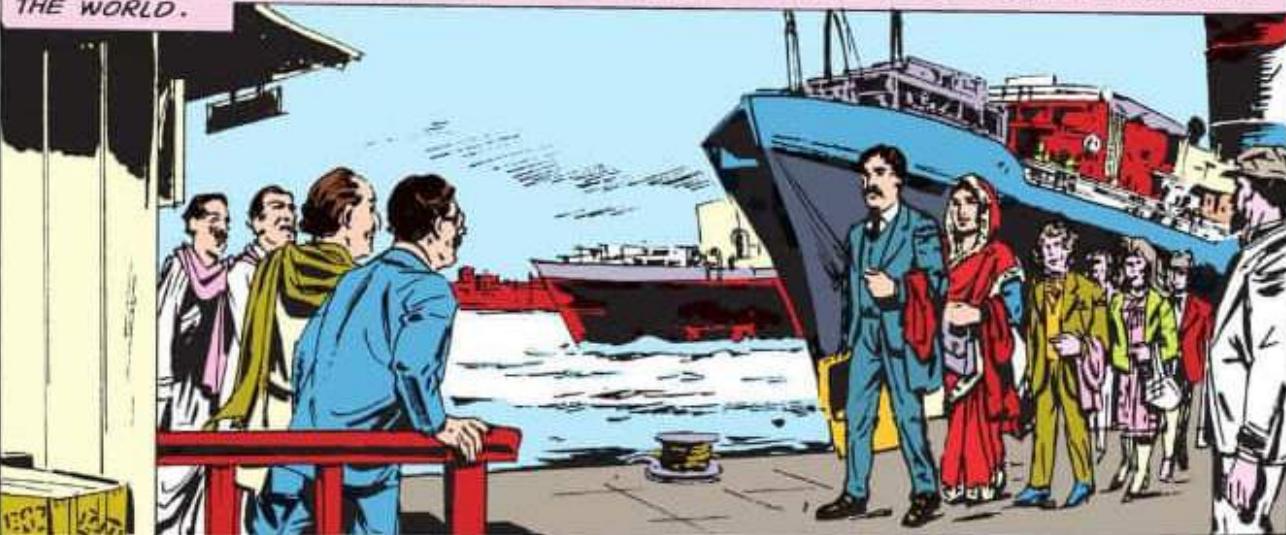
CONGRATULATIONS DR. BOSE*! ALL YOUR EXPERIMENTS ARE FLAWLESS.



THANK YOU, MR. PRESIDENT.

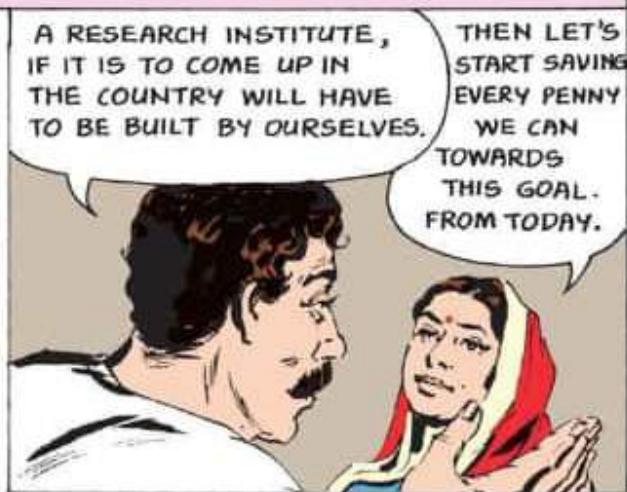
BOSE'S PIONEERING WORK HAD OPENED UP A NEW BRANCH IN NATURAL SCIENCE — BIOPHYSICS. STUDYING BIOLOGICAL PHENOMENA WITH THE METHODOLOGY OF PHYSICS, WITH ITS ACCURACY AND PRECISION, YIELDED A GREAT DEAL OF NEW INFORMATION ON THE MYSTERIES OF LIFE.

BOSE RETURNED TO INDIA IN TRIUMPH IN OCTOBER 1902. THE ROYAL SOCIETY HAD FINALLY PUBLISHED HIS PAPERS AND HIS DISCOVERIES HAD BEEN ACCEPTED ALL OVER THE WORLD.



* LONDON UNIVERSITY HAD AWARDED HIM A DOCTORATE IN RECOGNITION OF HIS OUTSTANDING CONTRIBUTION.

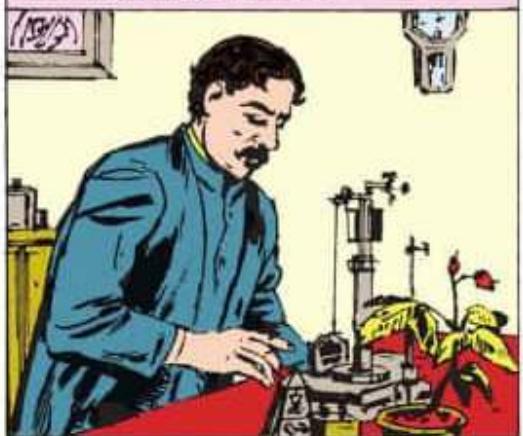
BOSE RESUMED HIS DUTY AT PRESIDENCY COLLEGE. FOR ALL HIS SUCCESS AND FAME, HE STILL HAD TO STRUGGLE WITH AN ILL-EQUIPPED LABORATORY.



BOSE NOW DEVOTED ALL HIS TIME TO THE STUDY OF PLANTS. HIS DEVOTION TO HIS WORK WAS SO TOTAL THAT PEOPLE BELIEVED HE COULD EVEN CONVERSE WITH PLANTS.



IN THE MATTER OF A FEW YEARS HE FOUND OUT MORE ABOUT PLANTS THAN ANYONE BEFORE AND PERHAPS SINCE.



HE PUBLISHED HIS DISCOVERIES OF THIS PERIOD IN TWO OF THE MANY BOOKS HE WROTE.

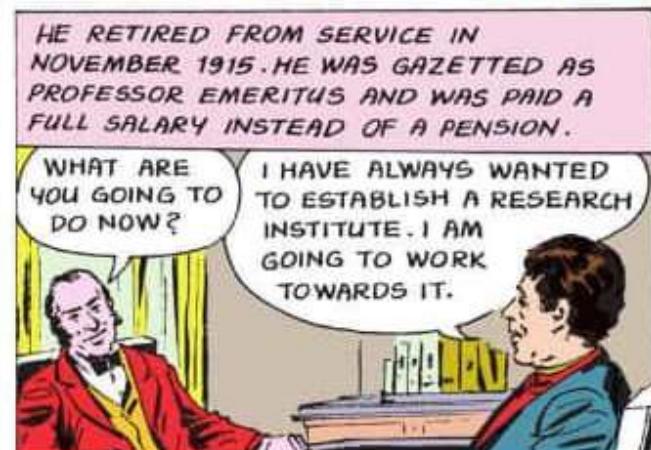


THESE BOOKS CREATED GREAT INTEREST ABROAD AND HIS METHODS AND INSTRUMENTS BEGAN TO BE USED IN UNIVERSITIES ALL OVER THE WORLD.

DESPITE HIS BUSY SCHEDULE HE FOUND TIME TO GO ON LECTURE TOURS ALL OVER THE COUNTRY. ONCE AT MYMENSINGH THE CROWD THAT CAME TO HEAR HIM WAS MORE THAN THE HALL COULD CONTAIN.

MR. BOSE, I SUGGEST WE RESTRICT ADMISSION BY CHARGING A HIGH PRICE FOR THE TICKETS.

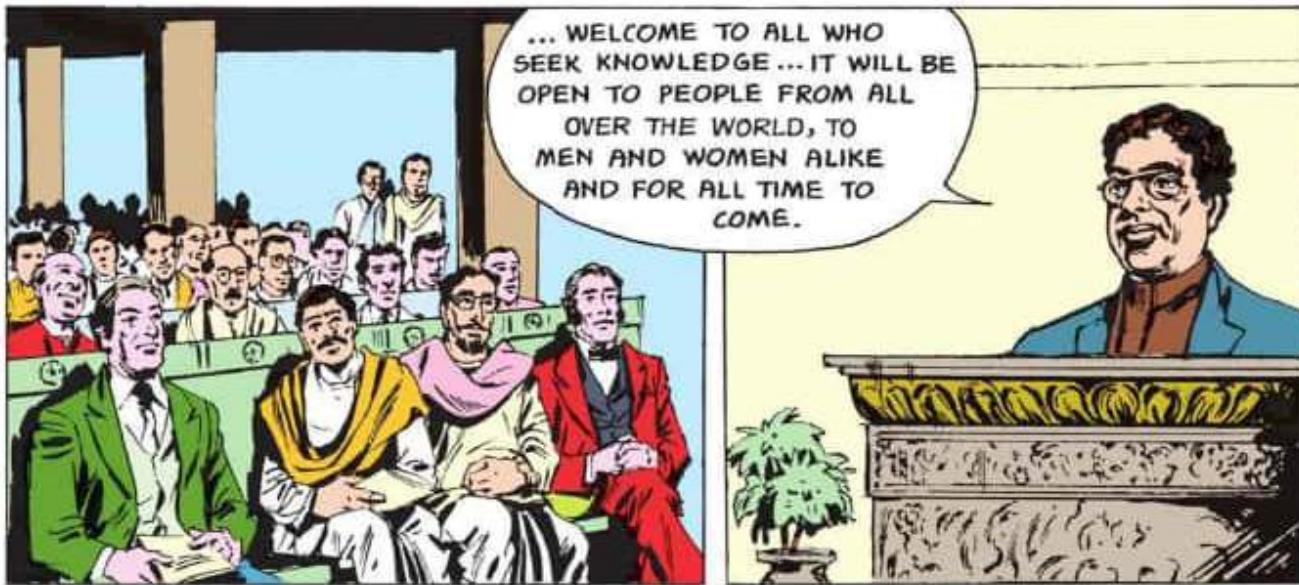
NO, PLEASE DON'T.



THE INSTITUTE WAS OPENED ON 30 TH NOVEMBER, 1917 ON HIS 59 TH BIRTHDAY.

I DEDICATE TODAY THIS INSTITUTE... TO THE FEET OF GOD FOR BRINGING HONOUR TO INDIA AND HAPPINESS TO THE WORLD.





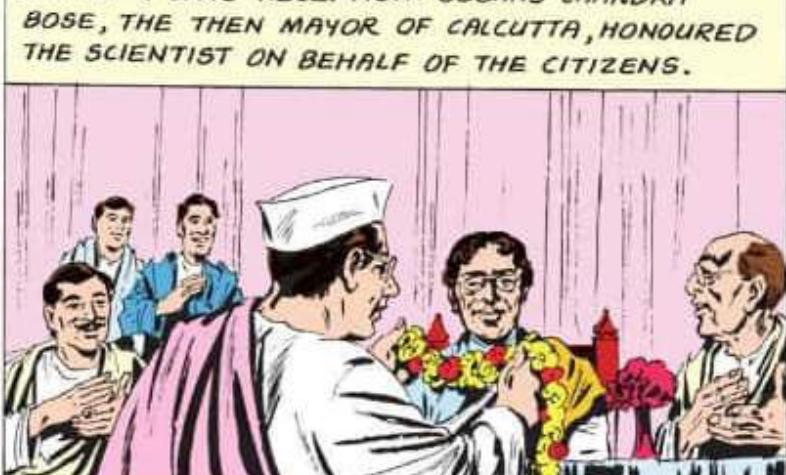
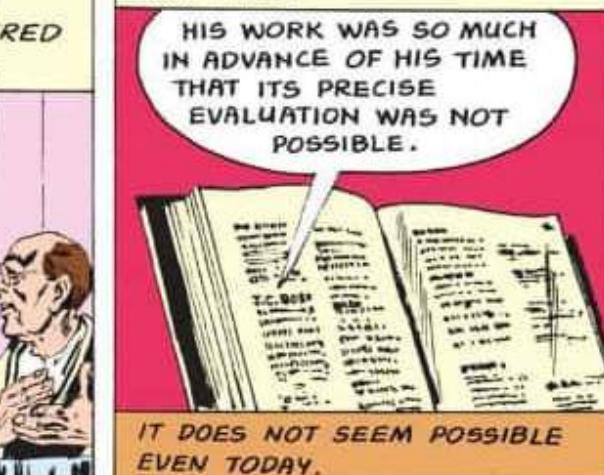
AS THE FOUNDER-DIRECTOR, BOSE WORKED AT THE BOSE RESEARCH INSTITUTE FOR THE REST OF HIS LIFE, GUIDING YOUNGSTERS IN RESEARCH.



HE PERFECTED A METHOD OF TRANSPLANTING FULL-GROWN TREES, BY SEDATING THEM.



THIS OUTSTANDING SCIENTIST DIED ON NOVEMBER 23, 1937. WHAT ENCYCLOPAEDIA BRITANNICA WROTE IN 1945 ABOUT HIM IS STILL VALID.



WHICH OF THE ACKS HAVE YOU STILL NOT READ?

EPICS AND MYTHOLOGY <i>Best known stories from the Epics and the Puranas</i>	Tales Of Shiva Tales Of Vishnu Tales Of Yudhishthira Tapali Thanjavur The Churning Of The Ocean The Gita The Golden Mongoose The King In A Parrot's Body The Lord Of Lanka The Pandava Princes The Pandavas In Hiding The Parijata Tree The Sons Of Rama The Syamantra Gem Tirupati Tripura Uloopi Vaishno Devi Vali Vishwamitra Yayali	Swami Chinmayananda Swami Pranavananda Tales Of Sai Baba Tansen Tulsidas Vidyasagar Vivekananda Zarathushtra	The Mouse Merchant True Friends Kanwal And Kehar Kesari The Flying Thief King Kusha Manduka	
	INDIAN CLASSICS <i>Enchanting tales from Indian literature</i>		PANCHATANTRA TALES	
	Ananda-Math Ancestors Of Rama Devi Choudhurani Durgesh Nandini Kadambari Kannagi Kapala Kundala Kumanan Maarthaanda Varma Malavika Manonmani Prince Jivaka Raj Singh Ratnavali Shakuntala The Adventures Of Pratapan The Elusive Kaka Udayana Urvashi Vasantasena Vasavadatta Veer Dhaval		Crows And Owls How The Jackal Ate The Elephant The Brahmin And The Goat The Dullard The Greedy Mother-in-law The Jackal And The Wardrum Raman Of Tenali Raman The Matchless Wit Sahasramalla Sakshi Gopal Satwant Kaur Sharan Kaur Shrenik Sukhu And Dukhu Sundari Tales Of Maryada Rama The Acrobat The Adventures Of Agad Datta The Adventures Of Baddu And Chhotu The Bridegroom's Ring The Celestial Necklace The Clever Dancer The Cowherd Of Alawi The Fearless Boy The Fool's Disciples The Golden Sand The Green Demon The Unhappy Tiger The Learned Pandit The Lost Prince The Magic Grove The Miraculous Conch The Mystery Of The Missing Gift The Pandit And The Milkmaid The Pig And The Dog The Pious Cat The Priceless Gem The Prince And The Magician The Prophecy The Queen's Necklace The Rainbow Prince The Secret Of The Talking Bird The Silent Teacher The Tiger And The Woodpecker The Tiger Eater Thugs Vidyut Chora Vikramaditya's Throne	
	VISIONARIES <i>Inspiring tales of thinkers, social reformers and nation builders</i>			
	Adi Shankara Albert Einstein Anant Pai Babasaheb Ambedkar Basaveshwara Buddha Chaitanya Mahaprabhu Chanakya Chokha Mehta Dayananda Deshbandhu Chittaranjan Das Eknath Fa Hien Ghanshyamdas Birla Guru Arjan Guru Gobind Singh Guru Har Gobind Guru Nanak Guru Tegh Bahadur Hiuen Tsang J.R.D. Tata Jagadis Chandra Bose Jamsetji Tata Jawaharlal Nehru Jayaprakash Narayan Jim Corbett Jnaneshwar Kabir Kalidas Lal Bahadur Shastri Lokmanya Tilak M. S. Subbulakshmi Madhvacharya Mahavira Marie And Pierre Curie Megasthenes Mirabai Mother Teresa Narayan Guru Rabindranath Tagore Ram Shastri Ramana Maharshi Ramanuja Salim Ali Shankar Dev Soordas Sri. Ramakrishna Srinivasa Ramanujan Subramania Bharati			
	FABLES AND HUMOUR <i>Evergreen folktales, legends and tales of wisdom and humour</i>			
	A Bag Of Gold Coins Amrapali Andher Nagari Angulimala Bikal The Terrible BIRBAL STORIES Birbal The Clever Birbal The Genius Birbal The Just Birbal The Wise Birbal The Witty Birbal To The Rescue The Inimitable Birbal Chandralalat Dhola And Manu Friends And Foes Gopal And The Cowherd Gopal The Jester HITOPADESHA TALES Choice Of Friends How Friends Are Parted Hothal JATAKA TALES Battle Of Wits Bird Stories Deer Stories Elephant Stories Jackal Stories Monkey Stories Nandi Vishala Stories Of Courage Stories Of Wisdom Tales Of Misers The Deadly Feast The Giant And The Dwarf The Hidden Treasure The Magic Chant			
	HITOPADESHA TALES <i>Choice Of Friends How Friends Are Parted</i>			
	JATAKA TALES		BRAVEHEARTS <i>Stirring tales of brave men and women of India</i>	
			A Nation Awakes Ahilyabai Holkar Ajatashatru Akbar Amar Singh Rathor Ashoka Babur Bagha Jatin Bajirao I	
	CONTEMPORARY CLASSICS <i>(New Category)</i>			
				<i>The best of modern Indian literature</i>
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